

Draft Decision

Victorian Transmission Network Revenue Caps 2003-2008

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Glossary

ACCC	Australian Competition and Consumer Commission
ASX	Australian Stock Exchange
Capex	Capital Expenditure
CAPM	Capital Asset Pricing Model
COAG	Council of Australian Governments
Code	National Electricity Code
CPI	Consumer Price Index
DAC	Depreciated Actual Cost
DCST	Double Circuit Steel Tower
DRP	Draft Regulatory Principles (for the Regulation of Transmission Revenues)
EAG	Energy Action Group
EBDIT	Earnings Before Depreciation Interest and Taxes
ESAA	Electricity Supply Association of Australia
ESC	Essential Services Commission
EUAA	Energy Users Association of Australia
EUCV	Energy Users Coalition of Victoria
Gamma (γ)	Likely Utilisation of Imputation Credits
Guidelines	Information Requirements Guidelines
ICTP	International Comparison of Transmission Performance
IPART	Independent Pricing and Regulatory Tribunal
ITOMS	International Transmission Operations and Maintenance Study
kV	Kilovolt
MAR	Maximum Allowed Revenue
MRP	Market Risk Premium
MVA	Mega Volt Ampere
MW	Mega Watt
NCC	National Competition Council
NECA	National Electricity Code Administrator
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company
NPV	Net Present Value
ODRC	Optimised Depreciated Replacement Cost
ODV	Optimised Deprival Value
OFGEM	Office of Gas and Electricity Markets
Opex	Operating and Maintenance Expenditure
ORC	Optimised Replacement Cost
PB Associates	Parsons Brinckerhoff Associates
QCA	Queensland Competition Authority
RBA	Reserve Bank of Australia
Regulatory Principles	Statement of Principles for the Regulation of Transmission Revenues
Reverse Capex	Past Capital Expenditure
SCST	Single Circuit Steel Tower
SKM	Sinclair Knight Merz Pty Ltd

SMHEA	Snowy Mountain Hydro-Electric Authority
SNNS	Specification and Negotiation of Network Services
SPI PowerNet	SPI PowerNet, a subsidiary of Singapore Power International
Tariff Order	Victorian Electricity Supply Industry Tariff Order
TNSP	Transmission Network Service Providers
TUoS	Transmission Use of System
urbis	urbis consulting property advisers
VAR	Voltage Amperes Reactive
VENCorp	Victorian Energy Networks Corporation
VNSC	Victorian Network Switching Centre
WACC	Weighted Average Cost of Capital
WDV	Written Down (Depreciated) Value

Executive Summary

Introduction

Under the provisions of clause 6.2 of the National Electricity Code (the code), the Australian and Consumer Commission (the Commission) is responsible for determining the maximum allowable revenue (MAR) for the non-contestable electricity services provided by SPI PowerNet and VENCORP (Victorian Energy Networks Corporation).

The code requires the Commission to set a revenue cap with an incentive mechanism (such as CPI-X or some variant) for non-contestable transmission network services. The Commission's role as regulator of those services is limited to determining the MAR. The code outlines the general principles and objectives for the transmission revenue regulatory regime to be applied by the Commission. The code grants the Commission the flexibility to use alternative, but consistent, methodologies. In fulfilling its role as regulator, the Commission's aim is to adopt a process which eliminates monopoly pricing, provides a fair return to network owners, and creates incentives for owners to pursue ongoing efficiency gains through cost reductions.

In setting the MAR, the Commission has adopted an accrual building block, which consists of the following:

- a *return on capital* — which is the written down (depreciated) value of the asset base multiplied by the post-tax nominal weighted average cost of capital (WACC);
- the *return of capital* — depreciation allowance;
- an allowance for *operating and maintenance expenditure*; and
- *tax* — expected business income tax payable.

This approach determines the maximum revenue that a network can earn from its regulated assets on an annual basis. The code provides the Commission with the discretion to choose the length of the regulatory period but states that it must not be less than 5 years. While choosing a longer regulatory period would provide a network with revenue certainty, this would be on the basis of increasingly uncertain estimates of future needs. On balance, the Commission has chosen to align the regulatory period with the TNSPs financial year. Consequently, SPI PowerNet will have a regulatory period from 1 January 2003 to 31 March 2008, while VENCORP's regulatory period will extend from 1 January 2003 to 30 June 2008.

The MAR established for the first year will be increased by inflation (consumer price index – CPI) and decreased by an efficiency factor (X) in the second year. This CPI-X adjustment factor will be made year-on-year during the regulatory period in line with the provisions set out in the Draft Regulatory Principles.

The Commission issued a draft Statement of Principles for the Regulation of Transmission Revenues (DRP¹) in May 1999. The DRP sets out the Commission's regulatory framework.

Under the code, the Commission commenced regulation of the revenues of the Victorian transmission networks, SPI PowerNet and VENCORP, from 1 January 2001. The Commission's role is limited until 1 January 2003 to administering transmission-related functions under the Tariff Order. However, from that date, the Commission will become responsible for setting the revenue requirements of SPI PowerNet and VENCORP in accordance with the processes set out in the code.

The transmission arrangements in Victoria are unique in the national electricity market. SPI PowerNet owns and operates the transmission network and provides bulk transmission services to VENCORP under a network agreement. VENCORP is a not-for-profit organisation that owns no transmission assets itself. It provides shared network services to users and is responsible for planning and directing the augmentation of the shared network (which excludes the connection facilities utilised by generators and distribution bodies).

Process

On 11 April 2002, SPI PowerNet submitted its proposed MAR to the Commission for approval in respect of the non-contestable electricity transmission services provided by the company in the state of Victoria. The application was made under the relevant provisions of the code.

On 30 April 2002, VENCORP submitted its proposed revenue cap to the Commission for approval in respect of the costs that it expects to be recovered through Transmission Use of System (TUoS) charges over the regulatory control period. VENCORP's application proposed certain arrangements that preserve the key elements of the Victorian Electricity Supply Industry Tariff Order (Tariff Order), the regime under which it is currently regulated.

The Commission engaged PB Associates to review the asset base, capital expenditure (capex) and operating and maintenance expenditure (opex) of SPI PowerNet. PB Associates were also engaged to review the opex of VENCORP. Submissions were received from a number of interested parties on the applications and PB Associates' reports. The MAR applications, consultant's reports and submissions by interested parties have been placed on the Commission's website. This draft decision should be read in conjunction with these documents.

MAR for SPI PowerNet

The Commission's assessment of the various components of the revenue cap, in the context of the building block framework, is discussed below.

¹ ACCC, Draft Statement of Principles for the Regulation of Transmission Revenues, 27 May 1999, p. 84.

Rate of Return

The rate of return proposed by SPI PowerNet is a WACC, with the return on equity component based on the Capital Asset Pricing Model (CAPM) approach. Based on prevailing financial market conditions and the level of risk to SPI PowerNet in providing its services, the Commission is proposing a post-tax- nominal return on equity of 11.36 per cent. It should be noted that all the parameters are consistent with the approach adopted in *the NSW and ACT, SMHEA* and Queensland revenue caps decisions. SPI PowerNet's proposed rates of returns are compared with the Commission's proposals in Table 1.1.

Table 1.1 Comparison of cost of capital parameters

Parameter	SPI PowerNet's proposal	Draft decision
Nominal Risk Free Interest Rate (R_f) %	5.99%	5.31%
Expected Inflation Rate (F) %	3.10%	2.26%
Debt margin (over R_f) %	1.85%	1.20%
Cost of debt $R_d = R_f + \text{debt margin}$ %	7.84%	6.51%
Market Risk Premium ($R_m - R_f$) %	6.00%	6.00%
Debt Funding (D/V) %	60%	60%
Value of imputation credits γ	50%	50%
Asset Beta β_a	0.585	0.40
Debt Beta	0.31	0.00
Equity Beta	1.00	1.00
Nominal Post Tax Return on Equity	11.99%	11.28%
Nominal Vanilla WACC	9.50%	8.42%

Note: figures may vary over time according to market conditions.

Asset value

In order to establish the appropriate return on the funds invested in SPI PowerNet, the Commission has modelled SPI PowerNet's asset base over the life of the regulatory period.

The basic methodology underlying the roll-forward of SPI PowerNet's asset base is that the closing value of the asset base from year to year is constructed by taking the opening value, converting it to a nominal figure by adding in an inflation adjustment, adding in any capital expenditure and subtracting disposals and depreciation for the year. The closing value for one year's asset base becomes the opening value for the following year's asset base. Under the post-tax nominal framework, this methodology is modified slightly to account for two regulatory issues, which is discussed in the Depreciation section below.

According to clause 6.2.3 (d)(4)(iii) of the code, in setting a revenue cap for the initial regulatory control period, the Commission is required to value sunk assets at the value determined by the jurisdictional regulator or consistent with the regulatory asset base established in the jurisdiction, provided that this value does not exceed deprival value. Further, the Commission's power to require the opening asset value to be

independently verified through a process agreed to by the NCC is limited to verifying that the opening asset value does not exceed deprival value.

In light of independent legal advice, the Commission is of the view that the principal constraint imposed by s 6.2.3(d)(4)(iii) is that where, in establishing the regulatory asset base in the jurisdiction, a judgment has been made on the treatment of a particular asset or class of assets, the Commission cannot substitute its own judgment for that which was exercised in establishing the regulatory asset base.

However, where no judgment has been made with respect to the treatment of assets, the Commission is of the view that it is consistent with the regulatory asset base established in the jurisdiction for it to include those assets in the asset base, provided that s 6.2.3(d)(4)(iii) of the code is otherwise satisfied.

Further, where a judgement was made to exclude assets from the regulatory asset base for a particular reason, the Commission is of the view that it is consistent with the regulatory asset base for it to now include such assets in the asset base if the circumstances which lead to the particular treatment of those assets by the jurisdiction have changed in such a way as to justify a different treatment by the Commission. For example, some assets, which were 'optimised out' of the asset base established by SKM in 1994, were in fact in existence and generally in service on 1 January 2001.

The Commission is of the view that it is consistent with this regulatory asset base for it to include such assets in the asset base if, applying the jurisdiction's approach to optimisation, the assets would be part of an optimised network in existence and generally in service as at 1 January 2001. While SKM's decision to exclude these assets was based on its judgement as to the size of an optimised network in 1994, it does not represent a judgement as to the actual size of the optimised network in existence and generally in service as at 1 January 2001.

In accordance with the code, the Commission will roll forward the jurisdictional valuation of 1 July 1994 to include asset additions, certain assets for which no provision was made in the jurisdictional valuation, deletions and depreciation and set an opening asset base as at 1 January 2003.

The Commission engaged PB Associates to undertake a review of SKM's valuation and assess the reasonableness of SPI PowerNet's proposed asset roll forward schedule. PB Associates concluded that SPI PowerNet had adopted a rigorous and detailed process to develop its opening asset base as at 1 January 2003.

Based on PB Associates' recommendations and the Commission's investigations, SPI PowerNet's opening asset has been adjusted by the following:

- the value of some assets for which no provision was made in the jurisdictional asset base was added to the roll forward 1994 SKM valuation to arrive at the opening base valuation as at 1 January 2001. The Commission considered it appropriate to include such assets on the basis that no judgment with respect to the valuation of these assets was made by the jurisdiction. One such asset class was 66kV transmission lines, for which SPI PowerNet proposed a valuation of \$11.2 million. In its review, PB Associates stated that the ODRC valuation is

approximately \$7.3 million. The Commission accepted the reasoning behind PB Associates decision;

- provision has been made in the asset base for easements on the basis that SKM was unable to value easements due to a lack of information. For easement valuation SPI PowerNet has used a hybrid method. Actual historical costs were indexed to 2001 and added to the transaction costs estimated in 1997 and escalated to 2001, which resulted in a value of \$231.8 million. For the purposes of the draft decision, the Commission considers it appropriate to include only the direct historical cost of easements of \$79.7 million into the asset base; and
- SPI PowerNet proposed that some re-optimised assets be included back into the asset base at replacement cost. However, the DRP states that re-optimised assets should be rolled into the asset base at depreciated replacement cost. PB Associates concurs with this view and therefore considers SPI PowerNet's methodology to be unsatisfactory.

Depreciation

Using a post-tax nominal framework, the Commission has made an allowance for "economic depreciation" which adds together the (negative) straight line depreciation with the (positive) annual inflation effect on the asset base. The purpose of this is to model the movements of asset values over the life of the regulatory period and for determining the return of capital. Calculation of the applicable straight-line depreciation component has been based on the remaining life per asset class.

On the basis of this approach the Commission has calculated a straight-line depreciation allowance that trends from \$17.98 million for the period 1 January 2003 to 31 March 2003 to \$74.70 million, \$79.96 million, \$79.08 million, and \$81.68 million in each of the following years.

Operating and maintenance expenditure

SPI PowerNet submitted that its business operations are very cost-efficient. PB Associates concurred with SPI PowerNet's assertion after reviewing national and international benchmark comparisons of TNSPs. The consultants also found SPI PowerNet's forecast expenditure to be reasonable and appropriate, with the increase in expenditure largely due to the age of the network assets. However, PB Associates noted that some external factors, such as the comparatively small area covered by SPI PowerNet's network, has favourably affected its operating expenditure compared with TNSPs in other states.

After consideration of PB Associates' review and the Commission's examination of the information provided, the Commission allowed opex in nominal terms of \$373.94 million over the regulatory period.

Capital expenditure

SPI PowerNet has planned the introduction of new technology and integrated systems to replace existing, relatively old, discrete systems. This should lead to an improvement in operating and maintenance expenditure. After a review of SPI

PowerNet's proposals, PB Associates concluded that the projects planned are justified and appropriate, and that SPI PowerNet has comprehensive Asset Management procedures in place.

On the basis of PB Associates' review and the Commission's own analysis, the Commission will include in nominal terms, \$360.22 million of capex in the calculation of SPI PowerNet's revenue cap.

Return on capital

Based on the above components, the Commission has modelled SPI PowerNet's asset base over the life of the regulatory period (see Table 1.2). The Commission has determined that the value to be attributed to SPI PowerNet's opening asset base as at 1 January 2003 is \$1,815.56 million.

Table 1.2 SPI PowerNet's return on capital, 1 January 2003 to 31 March 2008 (\$ nominal million)

	1 Jan 2003¹	2004	2005	2006	2007	2008
Opening asset base	1,815.56	1,823.04	1,855.91	1,880.63	1,892.31	1,921.13
Capital expenditure	15.30	68.58	63.79	54.31	75.95	82.29
Economic depreciation	7.83	35.17	39.08	42.62	47.13	51.34
Closing asset base	1,823.04	1,855.91	1,880.63	1,892.31	1,921.13	1,952.08
Return on capital	38.20	153.42	156.19	158.27	159.25	161.68

¹ This is data for a three-month period, 1 January 2003 to 31 March 2003.

Total revenue

Based on the various elements of the building block approach, the Commission proposes a smoothed revenue allowance that will increase from \$68.61 for the period 1 January 2003 to 31 March 2003 to \$264.55 million, \$272.50 million, \$280.68 million, \$289.12 million and \$297.81 million in the subsequent full years of the regulatory period (Table 1.3). These figures incorporate revenue smoothing based on an X smoothing factor 0.75 per cent. That is, the MAR will increase by CPI *plus* 0.75 per cent in each year of the regulatory period.

Table 1.3 SPI PowerNet's MAR to 2008 (\$ nominal million)

	Financial years ending 31 March					
	2003¹	2004	2005	2006	2007	2008
Return on capital	38.20	153.42	156.19	158.27	159.25	161.68
Return of capital	7.83	35.71	39.08	42.62	47.13	51.34
Operating expenses	19.41	67.78	69.31	70.87	72.47	74.10
Estimated taxes payable	6.33	15.27	16.18	17.08	17.94	19.00
Less value of franking credits	3.17	7.64	8.09	8.54	8.97	9.50
Unadjusted revenue	68.61	264.55	272.66	280.30	287.82	296.62
Smoothed MAR	68.61	264.55	272.50	280.68	289.12	297.81

¹ This is data for a three-month period, 1 January 2003 to 31 March 2003.

In arriving at its draft decision, the Commission notes that its proposed revenue cap is approximately 10.76 per cent lower than SPI PowerNet's proposed revenue cap.

MAR for VENCorp

VENCorp's revenue requirement is essentially comprised of:

- payments to SPI PowerNet for bulk transmission services (prescribed services);
- payments to SPI PowerNet and other network providers for services relating to augmentations; and
- opex.

Payments for augmentations are set under regulatory provisions (if non-contestable) or by competitive processes (if contestable). Therefore, only the opex costs are fully within the direct control of VENCorp. This represents approximately 2 per cent of VENCorp's total charges.

Operating and maintenance expenses

The Commission concurs with PB Associates' findings that VENCorp's planning processes are reasonable and robust ensuring that only necessary and efficient expenditure is included in forecasts. Hence, the Commission is satisfied that VENCorp's \$0.7 million increase in opex over the regulatory period is appropriate.

Proposed revenue cap arrangements

VENCorp has proposed revenue cap arrangements in its application that differ from other TNSPs currently regulated by the Commission. In essence, it has submitted arrangements that preserve the key elements of the Victorian Tariff Order regime. VENCorp notes that clause 9.8.4 of the code authorises these arrangements which recognise the not-for-profit nature of the organisation and allow for annual adjustments of its TUoS charges for under and over-recoveries of charges from the previous year, and for new augmentations when commissioned.

VENCorp proposes to maintain these features under the coming revenue cap decision, with annual adjustments being subject to approval by the Commission in the case of under or over-recoveries, or subject to the regulatory test in the case of new augmentations. The Victorian Department of Natural Resources and Environment is working with VENCorp to develop code change proposals to clarify the regulatory arrangements applying to VENCorp from 1 January 2003.

The Commission accepts the information provided by VENCorp and grants the proposed revenue requirement (Table 1.4) over the regulatory period.

Table 1.4 Revenue requirement 2003 to 2007/08 (\$million, exc. GST)

	Financial years ending 30 June					
	2003 ¹	2004	2005	2006	2007	2008
Net Operational Expenditure	2.7	5.4	5.5	5.9	5.9	6.1
Committed Annual Augmentation Charges	5.9	10.9	10.6	10.2	9.7	9.5
Planned Annual Augmentation Charges	0.2	3.6	7.5	12.2	15.6	17.2
Total VENCorp Forecast Expenditure	8.8	19.9	23.6	28.3	31.2	32.8
Total Cost to be recovered through TuoS charges by VENCorp	106.4	205.6	207.1	208.6	210.2	211.8

¹ This is data for a six -month period, 1 January 2003 to 30 June 2003.

SPI PowerNet and VENCorp's service standards

In establishing the revenue cap, the Commission is aware that it creates the incentive for the TNSPs to minimise costs, which may be to the detriment of the level of services provided. While the code provides some detail on the level of service standards appropriate for transmission networks in the NEM, these service standards are not comprehensive.

SPI PowerNet recognised that the Commission's current review of transmission service standards was incomplete at the time of writing its application and proposed that the Commission retain its current service standards regime.

The Commission is currently developing its view on service standards in the context of finalising the draft *Regulatory Principles*. The service standards review is aimed at giving the incentive to TNSPs to operate the network in a fashion consistent with market outcomes.

1 Introduction

The code was developed out of a number of resolutions made by the Council of Australian Governments (COAG) concerning the large potential for efficiency gains to the Australian economy available from reform of the electricity industry.

The code provides the framework for the NEM, which establishes a single wholesale market across southern and eastern Australia and an access regime for the transmission and distribution networks in participating jurisdictions. The NEM commenced on 13 December 1998. The code also establishes a regulatory framework which:

- provides that the Commission will determine the revenue caps to be applied to the non-contestable elements of participating transmission networks; and
- sets out how those regulated revenues, combined with the networks' contestable revenues, will be translated into network charges.

In accordance with its responsibilities under the code, the Commission commenced regulating the revenues of transmission networks in the NEM on 1 July 1999, with the timetable outlining the date at which the Commission commences responsibility in each jurisdiction outlined below.

Table 1.1 NEM transmission network regulation timetable

Jurisdiction	Commission transmission regulation start date
Victoria	1 January 2003 ¹
South Australia	1 January 2003 ²
Queensland	1 January 2002
Australian Capital Territory	1 July 1999
New South Wales	1 July 1999

1 The Commission commenced administration of the Victorian Tariff Order on 1 January 2001

2 The Commission commenced administration of the South Australian Electricity Pricing Order on 1 January 2001

This document sets out the Commission's decision in respect of the non-contestable elements of the Victorian transmission network, operated by SPI PowerNet and VENCORP. Commencing from 1 January 2003, SPI PowerNet's decision will apply for a period of five and quarter years, while VENCORP's will apply for a five and a half-year period.

The remainder of this chapter sets out:

- the regulatory framework according to which the Commission will determine the revenue caps to be applied to SPI PowerNet's transmission assets;
- the review and public consultation processes followed by the Commission in reaching its decisions; and
- an introductory overview of the Victorian transmission networks.

1.1 The Commission’s role as regulator of transmission revenues

1.1.1 Scope of the regulatory review

The code outlines the general principles and objectives for the transmission revenue regulatory regime to be applied by the Commission (see Box 1 for further details). It also grants the Commission the flexibility to use alternative methodologies, providing they are consistent with code’s ‘objectives, principles, broad forms and mechanisms, and information disclosure requirements’.

For example, the code requires the Commission to set revenue caps for the non-contestable elements of SPI PowerNet’s transmission assets. That is, to determine the maximum allowable revenue (MAR) which the owners of those assets can earn from the use of those non-contestable elements. However, if the Commission considers there is sufficient competition to warrant a more light handed regulatory approach, it may determine and apply such an approach.

Note that, to the extent that those assets also provide contestable services, the revenues associated with those services can be competitively sourced. Such revenues are, therefore, excluded from the revenue capping process and may be determined separately by SPI PowerNet.

Box 1: Objectives and principles of the transmission revenue regulatory regime

The code establishes that:

1. the transmission revenue regulatory regime must achieve outcomes which:
 - (a) are efficient and cost effective;
 - (b) are incentive based that share efficiency gains between network users and owners and provide a reasonable rate of return to network owners;
 - (c) foster efficient investment, operation, maintenance and use of network assets;
 - (d) recognise pre-existing government policies on asset values, revenue paths and prices;
 - (e) promote competition; and
 - (f) are reasonably accountable, transparent and consistent over time;
2. the regulation of aggregate revenue of transmission networks must:
 - (a) be consistent with the regulatory objectives (see 1 above);
 - (b) address monopoly pricing concerns, wherever possible, through the competitive supply of network services but otherwise through a revenue cap;
 - (c) promote efficiency gains and balance supply and demand side options;
 - (d) promote a reasonable rate of return to network owners on an efficient asset base where:
 - (i) the value of new assets is consistent with take-or-pay contracts or NEMMCO augmentation determinations;
 - (ii) the value of existing assets are determined by jurisdictional regulators and must not exceed their deprival value; and
 - (iii) any asset revaluations undertaken by the Commission are consistent with COAG decisions;
3. the form of the economic regulation shall:
 - (a) be a revenue cap with a CPI-X incentive mechanism;
 - (b) take into account expected demand growth, service standards, weighted average cost of capital, potential efficiency gains, a fair and reasonable risk adjusted return on efficient investment and ongoing commercial viability of the transmission industry;
 - (c) have a regulatory control period of not less than five years; and
 - (d) only apply to those assets not expected to be offered on a contestable basis.

Source: National Electricity Code, clauses 6.2.2 – 6.2.5.

1.1.2 Form of transmission revenue regulation

In assuming its role as the regulator of NEM transmission revenues, the Commission's aim is to adopt a regulatory process which eliminates monopoly pricing, provides a fair return to network owners and creates incentives for managers to pursue ongoing efficiency gains through cost reductions. In achieving these aims the Commission is aware of the need to ensure compliance costs are minimised and that the regulatory process is objective, transparent and as light handed as possible.

As this review is being undertaken, the Commission is working towards finalising its *Statement of the Principles for the Regulation of Transmission Revenues (Regulatory Principles)* which sets out how the Commission proposes to regulate transmission revenues. The draft *Regulatory Principles* was released in May 1999 and the Commission is continuing to consult on elements of that document. While the *Regulatory Principles* have yet to be finalised, this SPI PowerNet revenue cap decision encompasses the majority of the principles outlined in the draft *Regulatory Principles*.

For example, the SPI PowerNet revenue cap has been determined according to the following principles:

- an accrual building block approach based on forecast costs of service;
- for the initial asset value, using the jurisdiction asset value, provided it is below the optimised deprival value (ODV) as part of an optimised deprival valuation assessment;
- networks are given the opportunity to identify assets subject to bypass risk — such assets may be subject to accelerated depreciation to compensate the network for that risk prior to their removal from the asset base;
- planned capital expenditures being subject to an *ex ante* prudence test and an *ex post* examination of the actual expenditure which has taken place;
- the rate of return on the asset base being determined using a post-tax nominal framework;
- the required efficiency regime will be of the CPI-X form;
- operating and maintenance expenditures will be subject to a single regulatory period glide path while other components of the building block will face a P₀ adjustment;
- the revenues determined will be ‘sanity checked’ through the use of financial indicator analysis; and
- each network will be required to provide a set of service standards for approval by the Commission - those standards will be included in the revenue cap decision and a penalty system will apply if the network fails to comply with those standards.

Consistent with the proposals contained in its draft *Regulatory Principles*, the Commission has adopted an accrual building block approach in the present revenue cap decisions.

In implementing this framework, the ‘post-tax nominal’ accrual building block approach calculates the MAR as the sum of the return on capital, the return of capital, an allowance for operating and maintenance (non-capital) expenditure and income tax payable; that is:

$$\begin{aligned} \text{MAR} &= \text{return on capital} + \text{return of capital} + \text{opex} + \text{taxes} \\ &= (\text{WACC} * \text{WDV}) + \text{D} + \text{opex} + \text{taxes} \end{aligned}$$

where: WACC = post-tax nominal weighted average cost of capital;

WDV = written down (depreciated) value of the asset base;

D = depreciation allowance;

opex = operating and maintenance expenditure; and

taxes = tax liability allowance.

Furthermore, in implementing the CPI-X incentive mechanism the revenue cap will increase each year in line with inflation but decrease by a smoothing factor.

1.1.3 Structure of this document

The remainder of this document broadly follows the structure inherent in the methodology described above. That is, in relation to the SPI PowerNet's decision:

- Chapter 2 concerns the network's weighted average cost of capital (WACC);
- Chapter 3 sets out the Commission's assessment of SPI PowerNet's opening asset base as at 1 January 2001;
- Chapter 4 determines the network's projected future capital expenditure requirements;
- Chapter 5 concerns operating and maintenance expenditure;
- Chapter 6 summarises the Commission's assessment of each element of the building block (including depreciation), applies the CPI-X incentive regime and discusses options for revenue smoothing to determine the final revenue path;
- Chapter 7 sets out the service standards appropriate to the level of the revenue cap determined; and
- Chapter 8 sets out the relevant financial indicator analysis conducted on the revenue cap determined.

1.2 Review and public consultation processes

The key aspects of the review of SPI PowerNet's revenue cap which have occurred to date are as follows:

- *On the 11 April 2002, SPI PowerNet submitted its application for the Commission's consideration:* The application outlines its views on key elements of the revenue cap decision. The application is also available on the Commission's website.
- *The Commission engaged a consultant to review a recent valuation of SPI PowerNet's asset base and its proposed capex, opex and service standards:* PB Associates was engaged to conduct these consultancies. Copies of the PB Associates reports are available on the Commission's website.
- *The Commission conducted a public consultation process (submissions closed on the 28 June 2002):* This involved the Commission inviting interested parties to provide comments on SPI PowerNet's application and PB Associates' reports. The Commission received five written submissions from interested parties.
- *The Commission conducted discussions with SPI PowerNet:* The information provided by SPI PowerNet subsequent to its submission is included in this draft decision.
- *The Commission published the draft decision:* On 30 September 2002, the Commission published a draft decision setting out the Commission's proposed revenue cap for SPI PowerNet for the period from 1 January 2003 to 30 March 2008.

Submissions close on the 31 October. If requested, the Commission will conduct a public forum in Melbourne at a venue and a time to be announced at a later date. The Commission will take into consideration issues raised by interested parties in submissions and at the public forum in its final decision. The Commission anticipates that it will make a decision in November 2002.

1.3 Overview of the SPI PowerNet and VENC Corp transmission network

1.3.1 SPI PowerNet

SPI PowerNet owns, operates and maintains over 6,500 kilometres of high voltage transmission lines, as well as 44 switching and transformation facilities throughout Victoria. SPI PowerNet's network spans 228,000 square kilometres throughout Victoria. Figure 1.1 illustrates the length of SPI PowerNet's network and highlights the major load centres in Victoria.

The network is built around a 500kV backbone running from the major generating source in the Latrobe Valley, through Melbourne and across the southern part of the state to Heywood, near the South Australian border. This backbone is designed to support the major load centres (Melbourne and the Portland aluminium smelter) and is surrounded by:

- A 220 kV ring around the Melbourne metropolitan area supplying 220kV/66 kV terminal stations;
- An inner and outer ring of 220 kV/66 kV terminal stations in country Victoria supplying the regional centres (the "State Grid"); and
- Three interconnections with NSW and one with South Australia.

SPI PowerNet services in excess of 1.8 million households and 280,000 businesses. In total, the transmission network is responsible for 53 million megawatt hours of energy annually.

SPI PowerNet's network supplied a maximum demand for electricity of 8,205 megawatts (MW) over the 2000/01-summer peak. The Victorian peak loading conditions occur during high temperature summer days and the transmission system capability is limited by reactive support following critical contingencies.

Figure 1.1: SPI PowerNet’s transmission network



1.3.2 VENCORP

The Victorian Energy Networks Corporation (VENCORP) is wholly owned by the Victorian government and was established in 1997 under an act of Parliament. It is the monopoly provider of shared transmission network services in Victoria, acquiring bulk network services from SPI PowerNet and other service providers under network agreements. VENCORP is a not-for-profit organisation and does not own transmission assets itself. Under the Victorian Tariff Order regime, it operates on a full cost recovery but no operating surplus basis, recovering its costs through transmission use of system charges.

VENCORP also plans and directs the augmentation of the shared network. It adopts a ten year planning horizon to identify potential major transmission constraints in the Victorian network and develops options for alleviating those constraints. VENCORP’s other roles include technical compliance monitoring of network participants.

The separation of the network asset owner (SPI PowerNet) from the investment decision-maker (VENCORP) is unique within the national electricity market.

2 The cost of capital

2.1 Introduction

Clause 6.2.2(b)(2) of the code requires that the Commission seek to achieve a fair and reasonable rate of return on efficient investment as one of the objectives of economic regulation. Further guidance is provided in Clause 6.2.4(c)(3) of the code in which it is stated that the Commission must have regard to the WACC of the transmission network. In addition, the Commission is to have regard to the risk adjusted cash flow rate of return required by investors in commercial enterprises facing similar business risks to the transmission network.

The importance of correctly assessing, and expressing, the return on capital is highlighted by the capital intensive nature of the electricity industry, illustrated by the *NSW and ACT* and *Queensland* revenue cap decisions where the return on capital accounted for around two thirds of the MAR. Hence, relatively small changes to the cost of capital can have a significant impact on the total revenue requirement and, ultimately, end user prices.

The importance of the return on equity is that, if it is too low, the regulated network will be unable to recover the efficient (and fair) costs of service provision and perhaps, more importantly, may not have adequate incentive to augment facilities when appropriate. Conversely, if the return on equity is too high, this will affect business-input cost and the ability of firms to compete domestically and overseas, as well as a significant impact on down stream investment and allocative efficiency.

2.2 The capital asset pricing model

According to Clause 6.2.2 of the code, the revenue regulatory regime, to be administered by the Commission, must provide for a:

a sustainable commercial revenue stream which includes a fair and reasonable rate of return to *Transmission Network Owners* and/or *Transmission Network Service Providers* (as appropriate) on efficient investment, given efficient operating and maintenance practices...

Schedule 6.1(2.2.2) of the code states that there are a variety of methods that can be applied to estimate this key return on equity (R_e) component. For example, prices to earnings ratios, dividend growth model and arbitrage pricing theory. However, in practice the capital asset pricing model (CAPM) remains the most widely accepted by regulators.

The CAPM calculates the required return given the opportunity cost of investing in the market, the market's own volatility and the systematic risk of holding equity in the particular company. The CAPM determines the rate of return from the perspective of the investor measured in cashflow terms. This includes the returns from year to year as well as the value to the investor accruing as the result of any net appreciation in the capital base.

The CAPM formula is:

$$R_e = R_f + \beta_e(R_m - R_f)$$

where: R_f = the risk free rate of return — usually based on government bond rates of an appropriate tenure;

$(R_m - R_f)$ = the market risk premium (MRP) — the return of the market as a whole less the risk free rate; and

β_e = the relative systematic risk of the individual company's equity.

The CAPM expresses the rate of return as the post-tax nominal return on equity. This can be adjusted to allow for debt to derive the corresponding return on assets, otherwise known as the WACC.

Key parameters

The key parameters relevant to WACC/CAPM analysis are:

- the risk free interest rate (R_f);
- the expected rate of inflation (F);
- the cost of debt (R_d);
- the market risk premium (MRP);
- the likely utilisation of imputation credits (γ);
- the likely level of debt funding (D/V);
- the equity beta (β_e) of the company; and
- the statutory tax rate (T) from which effective tax rates on debt (T_d) and equity (T_e) can be derived for individual firms.

The Commission's assessment of each of these measures are discussed in turn.

2.3 Estimate of the risk free interest rate

The risk-free rate measures the return an investor would expect from an asset with zero volatility and zero default risk. This rate of return can be approximated by the yield on long-term government bonds, which are viewed as risk-free assets since the government can honour all interest and debt repayments.

On this issue of the risk free interest rate, Statement 6.7 of the draft *Regulatory Principles* states:

The risk free rate will be estimated from the (nominal) observable rate on five-year Commonwealth bonds.

The risk free rate will be normally based on a 40 trading day moving average covering the eight weeks prior to the reset date unless there is evidence to suggest that the current rate of the day represents a transition to a new level which is expected to be maintained.

The Commission adopted the forty trading day average in *NSW and ACT*², *Snowy Mountain Hydro-Electric Authority (SMHEA)*³ and *Queensland Transmission Network (Powerlink)*⁴ revenue cap decisions.

2.3.1 Submissions by interested parties

SPI PowerNet commissioned a report by R.R. Officer to examine issue relating to capital financing and taxation. Officer argued that in the context of the CAPM theory there is no reason to pick one duration over another. However, ideally the duration of the CAPM should be the duration of the planning period for which the CAPM is to be used to estimate an expected or required return. This means that if the planning horizon is a long-term investment then a long-term government bond is the most appropriate duration to use.

According to Officer, the argument for a term consistent with the regulatory period would be correct if the entity, at the time it purchased the assets, was guaranteed full compensation for the required return at the end of the five year period if it choose to walk away from the asset.

Officer argues that electricity companies are not in a position where they can simply walk away. When a company commits funds to purchase infrastructure asset, it is typically on a long-term basis. Even though it knows that the allowed rate of return on the asset will be reset at regular periods, it does not have the luxury of having those rates prescribed to it at the time the asset is purchased. Nor does it have the luxury of knowing that it can walk away from the asset if it finds such compensation unsatisfactory. Hence, Officer contends that the risk to the infrastructure owner is the risk faced by the purchaser of a long-term asset.

Furthermore, Officer argued that it has been conventional in Australia to use 10 year Commonwealth Bond Yields as the proxy of the risk free rate as it is a highly liquid security which provides a good reflection of the expected yield on a long term government security. To the extent that a shorter rate has been used in electricity it has only been by the Commission, in relation to *SMHEA* and *Powerlink* revenue caps.

Officer noted that another contentious issue is defining the point at which the redemption yield on a government security be used. Typically regulators have used an average rate running from 12 months down to 20 days. The argument is that these averages remove potential “spikes” which may be reflected in the rates due to some short term uncertainty. Officer argues that there is no theoretical justification for using an average of rates. By taking an average of the last 20 days or longer simply lessens the information content in the last rate about expected future rates.

² ACCC, *decision – NSW and ACT Transmission Network Revenue Caps 1999/00-2003/04*, January 2000.

³ ACCC, *decision – Snowy Mountains Hydro-Electric Authority Transmission Network Revenue Cap 1999/00-2003/04*, February 2001.

⁴ ACCC, *decision – Queensland Transmission Network Revenue Cap 2002 - 2006/07*, November 2001.

The Energy Users Coalition of Victoria (EUCV) commented that the risk free rate should be based on the 5 year bond rate.

Commission's considerations

Redemption yields on government bonds vary depending on the term of the security, meaning that it is important to specify a term when estimating the risk-free rate. There exists significant debate, however, over the term that should be used in regulatory decisions. It has been suggested by some that it is appropriate to adopt a rate that is linked to the regulatory period, while others argue that the use of longer-term rates represents a more appropriate measure. At this stage the Commission proposes maintaining the current approach of linking the bond term with the length of the regulatory time period.

Under CAPM, it is theoretically correct to measure rates on the day immediately prior to the start of the regulatory period, as this rate does not include superseded news. However, in practice regulators (including the Commission) have often employed a moving average of bond yields to smooth out any possible market aberrations and to mitigate excessive borrowing costs. Furthermore, the Commission determines the risk-free rate a number of weeks prior to the start of the actual regulatory period given the constraints associated with the decision-making process. At this stage the Commission is considering the appropriateness of possibly adopting a 5-day moving average of yields and devising a forward rate which captures rates corresponding exactly with the regulatory period. The Commission also proposes informing the service provider of the exact averaging period a number of months prior to the determination of regulated tariffs.

For the present decision, the Commission proposes to maintain a five year, forty day moving average for bond rates. At the time of the draft decision, the five year, forty day moving average for bond rates provided a rate of 5.31 per cent. It should be noted that the Commission welcomes further input regarding the most appropriate surrogate for a risk-free rate of return.

2.4 Expected inflation rate

While the expected inflation rate is not an explicit parameter in the return on equity calculation, it is an inherent aspect of the risk free rate and is also implicit in the cost of debt. There are two sources of information for determining inflationary expectations, financial markets and government estimates. The financial markets indicator of inflation is derived from the difference between the nominal and indexed bonds over a corresponding period. Alternatively, the Commonwealth Treasury releases inflationary forecasts based on internal modelling. Statement 6.11 of the DRP states:

The forecast inflation rate will be deduced from the difference in the nominal bond rate and inflation indexed bond rates, and will be deduced for the term corresponding to the duration of the regulatory period. Alternatively, official forecasts may be used.

The Commission adopted this approach in the *NSW and ACT, SMHEA and Powerlink* revenue cap decisions. However, the maturity dates on the nominal and indexed bonds rarely correspond, requiring realignment using either interpolation or extrapolation.

The process of interpolation and extrapolation performs a mathematical line of best fit, estimating an indexed bond rate at a given point in time.

2.4.1 Commission considerations and conclusion

The Commission notes that the benefit of such an approach is that it delivers a forward looking estimate of inflation rather than a historic measure.

Consistent with the proposal in the draft *Regulatory Principles* and the method adopted in the *NSW and ACT, SMHEA and Powerlink* revenue cap decisions, and SPI PowerNet's application, the Commission will adopt the financial markets expectations of inflation. Using the extrapolated nominal and real bond rates, for this draft decision, the Commission forecasts inflation of 2.26 per cent

2.5 Cost of debt

The cost of debt is the debt margin over the risk free rate on commercial loans. The cost of debt factor varies depending on the entity's gearing, its credit rating and the term of the debt. The application of the cost of debt to the asset base using the assumed gearing will generate the interest costs for regulatory purposes.

Statement 6.10 of the draft *Regulatory Principles* states:

The Commission will estimate the cost of debt for a firm conforming to the financial structures implied by the regulatory accounts in consultation with relevant finance agencies.

2.5.1 Submissions by interested parties

SPI PowerNet proposes a cost of debt of 185 basis points above the nominal risk free rate of return. Officer notes that debt margins used in regulatory decisions are typically around 1 to 1.5 with an average of approximately 1.2. Officer argues that the significant difference between these decisions and the debt margin recommended for SPI PowerNet is due in large part to the implied assumptions made in the decisions about debt financing together with the state of the debt market at the time that market data was sampled. Although not always explicit, many decisions appear to have assumed that the relevant benchmark for debt financing is based on the term of the regulatory period. Officer points out that the long planning horizon for infrastructure necessitates using a long term financing basis (i.e. 10 year duration or greater).

Officer noted that underwriters of debt such as Westpac and UBS Warburg indicated that they believe that the ten year debt issued by the typical utility company would attract a BBB+ rating. Such debt is currently attracting a debt margin of approximately 185 basis points. Officer noted that adopting the debt margin of 185 basis points implies a beta of 0.31.

The EUCV argues that SPI PowerNet's proposed debt margin does not replicate the borrowing risk profile of SPI PowerNet's business and should be set at 120-130 basis points.

2.5.2 Commission's considerations

The risk of the entity's debt will be a function of the amount of asset backing to the debt or equivalently the degree of leverage or gearing the entity has. The greater the debt to value or debt to equity ratio of the entity, other things being equal, the greater the risk and therefore the greater the required return or debt margin.

The Commission assumes a credit rating of A, which is the average credit rating for the electricity industry. Using relative market information from Standard and Poor's the Commission found that a firm with an A credit rating would have around a 1.2 debt margin, based upon a five year term. The Commission will continue to monitor capital markets for further evidence that the debt margin is increasing or decreasing.

The Commission, for the purposes of this decision, will use a margin of 120 basis points, in combination with the nominal risk-free rate of 5.31 per cent suggests a nominal cost of debt (rd) figure of 6.51 for use in the WACC estimate.

2.6 The market risk premium

The MRP is the premium above the risk free rate of return that investors expect to earn on a well diversified portfolio, namely:

$$\text{MRP} = R_m - R_f$$

Statement 6.8 of the draft *Regulatory Principles* states:

The Commission will adopt what it perceives to be the accepted value of the market risk premium available at the time of the regulatory decision.

Under a classical tax system, conventional thinking suggests a value for the MRP of around 6.0 per cent. In a consultancy to the Commission, Kevin Davis derives figures based on a dividend growth model of between 4.5 per cent and 7.0 per cent with further indication that the MRP may be trending downward.

While the concept of the WACC and its application for determining regulated revenues is unambiguously forward looking, estimates of the future cost of equity are not readily available. Practical applications of the CAPM therefore rely on the analysis of historic returns to equity to estimate the MRP.

In recent revenue cap decisions such as *NSW and ACT*, *SMHEA* and *Powerlink* the Commission has adopted a MRP of 6.00 percent. SPI proposes a MRP of 6.00 percent consistent with the Commission's regulatory decisions.

2.6.1 Commission's considerations and conclusion

The Commission recognises the indicators that the market risk premium has fallen over recent years, however the Commission is wary that this may reflect short term market trends. The Commission's assessment of the MRP suggested that it lay between 5.0 per cent and 7.0 per cent, and for the purposes of this draft decision, the Commission chose the mid point of this range, i.e. an MRP of 6.0 per cent. This figure is consistent with recent Commission decisions and SPI's PowerNet's proposal.

2.7 Value of franking credits (dividend imputation factor)

As stated in the code, under an imputation tax system, a proportion of the tax paid at the company level is, in effect, personal tax withheld at the company level. Australia has a full imputation tax system.

The rate of utilisation of tax credits; γ (gamma) has a significant effect on the WACC. The analysis of imputation credits and its impact on assessed costs of capital in Australia is a developing field and some issues remain contentious.

However, there is little empirical doubt that franking credits do have some value. As stated in Schedule 6.1(5.2) of the code:

As the ultimate owners of government business enterprises, taxpayers would value their equity on exactly the same basis as they would value an investment in any other corporate tax paying entity. On this basis, it would be reasonable to assume the average franking credit value (of 50 per cent⁵) in the calculation of the network owner's pre tax WACC.

There is considerable debate as to the precise value of franking credits. As with other inputs to the WACC and CAPM equations, selection of a value for this particular parameter is ultimately a matter of judgement having regard to the available empirical evidence.

2.7.1 Commission's considerations and conclusion

The Commission's regulatory regime attempts to ensure that the return on capital allowance in the revenue cap is equivalent, and only equivalent, to the risk adjusted market rate of return required to maintain investment.

On 30 June 2000 the legislation pertaining to taxation was modified to accommodate the Ralph review recommendations on franking credits. The alteration to the tax law ensures that resident individuals receive the full benefit of franked dividends regardless of their tax position. Previously resident individuals whose taxable income was not sufficient to generate tax expenses sufficient to utilise the franking rebates lost that benefit.

A number of questions have been raised due to the recent tax reforms. First, to what extent if any should foreign investors be recognised. Second, what is an appropriate adjustment to the company tax rate to reflect the benefits of imputation? This adjustment reflects both the utilisation rates for imputation credits and the ratio of credits assigned to company tax paid.

The Commission has concluded on the following in regards to the utilisation of tax credits. First, regarding the issue of recognising foreign investors continued use of a version of the CAPM assumes the national equity markets are segmented rather than integrated. It follows that foreign investors must be completely disregarded and hence the model would recognise that investors would be able to fully utilise imputation credits.

⁵ A study conducted by the Melbourne University Graduate School of Management, which found that franking credits are, on average, valued by equity investors at approximately 50 cents in the dollar.

Second, the Commission considers regarding the appropriate adjustment to the company tax rate to reflect the benefits of imputation, the utilisation rate for imputation credits should be set at one, and this follows from the first point above. In addition the ratio of imputation credits assigned to company tax paid should be set at the relevant industry average, which appears to be at or close to one for most industries. These two recommendations imply that the product of the utilisation rate and the ratio of imputation credits assigned to company tax paid (denoted by γ) should be at or close to 1 for most companies rather than the currently employed figure of 0.50. The effect of this change would be to reduce the allowed output prices of regulated firms.

A consensus view has yet to be reached amongst Australian academics and practitioners for making an adjustment to the rate of utilisation of tax credits. Therefore, the Commission considers that it is inappropriate for it to lead in this area. Hence, in line with recent Commission decisions, a γ of 0.5 will be used in this decision.

2.8 Gearing

A benchmark-gearing ratio needs to be established for SPI PowerNet to identify the appropriate weighted average cost of debt and equity in the WACC.

The code (Schedule 6.1, 5.5.1) states that:

gearing should not affect a government trading enterprise's target rate of return.... For practical ranges of capital structure (say less than 80 per cent debt), the required rate of return on total assets for a government trading enterprise should not be affected by changing debt to equity ratios.

SPI PowerNet proposes a gearing ratio of 60 per cent debt to equity for its business.

In the *NSW and ACT, SMHEA and Powerlink* revenue cap decisions the Commission adopted a gearing ratio of 60 percent based on industry wide benchmarking.

2.8.1 Commission's considerations

The capital structure can have a significant bearing on, not only the debt margin, but also the required return on equity although within "reasonable" bounds it is unlikely to affect the asset cost of capital or the WACC. The greater the level of gearing, the greater the risk of both debt and equity, however, over reasonable ranges, the risk of the total assets does not change. This is because the change in the weighting of capital from equity to debt maintains a constant risk level for the assets as a whole even though the beta measures of both debt and equity will increase.

Table 2.1 below indicates the typical capital structure assumed by regulators has been 60 per cent debt as a proportion of total assets. In theory, within the range of 40 per cent to 70 per cent the asset cost of capital should be stable. The Commission considers that in the circumstances, it would appear that a leverage of between 50 per cent and 60 per cent is a reasonable benchmark. Given that most regulators have adopted a gearing of 60 per cent, which is consistent with this benchmark, there is little compelling reason to vary from this assumption.

Therefore, the Commission will adopt in the ordinary course of its regulatory decision making process a benchmark-gearing ratio of 60 per cent. However, if the service

provider considers there is sound justification for departing from the benchmarked gearing approach, the Commission is receptive to considering such proposals. In this case, the Commission notes that SPI PowerNet recommended a gearing ratio of 60 per cent.

Table 2.1 Gearing levels adopted in regulatory decisions

Entity	Industry	Debt/Debt+Equity (per cent)
QCA(2001)	Electricity distribution	60
ESC (2000a)	Electricity distribution	60
ACCC (2000a)	Electricity transmission	60
IPART (1999c)	Electricity distribution	60
IPART (1999d)	Electricity distribution	60
OFGEM (1999)	Electricity distribution (UK)	50
ACCC/ESC (1998)	Gas transmission	60
IPART (1999b)	Gas distribution	60
ESC (1998b)	Gas distribution	60

2.9 Betas

The WACC is the cost of capital reflected in the assets. Therefore the asset beta must be equal to a weighted sum of the debt and equity betas. The cash flows generated by the assets have to service the financial obligations of those providing capital (debt and equity).

The equity beta is a measure of the expected volatility of a particular stock relative to the market as a whole. It measures the systematic risk of the stock, that is, the risk that cannot be eliminated in a balanced, diversified portfolio. Generally, the Australian Stock Exchange (ASX) is used as a proxy for the whole market. An equity beta of less than one indicates the stock has a low systematic risk relative to the market as a whole (the market average being equal to one). Conversely an equity beta of more than one indicates the stock has a high risk relative to the market.

The debt beta captures the systematic default risk of a debt investment. In this regard, it is the debt analogue of equity beta. Just as equity beta represents a measure of the systematic risk of a company relative to the market as a whole, debt beta represents the extent to which the likelihood of the company defaulting on its debt obligations is correlated with movements in market returns.

Table 2.2 highlights the average equity beta by industry listed on the ASX as at March 2002. Where a firm is not listed, betas cannot be calculated directly from economic

returns. In such cases, conventional practice has been to benchmark the firm's equity beta relative to other companies or sectoral averages. In the context of regulated electricity networks even this approach is problematic, as there are limited Australian reference stocks for such businesses. Traditionally the Commission has used the infrastructure and utilities group average.

Table 2.2 Average equity beta by industry listed on the ASX

Industry	Average Equity Beta
Property Trusts	0.366
Alcohol and Tobacco	0.420
Food and Household	0.424
Transport	0.463
Diversified Industrials	0.719
Engineering	0.756
Building Materials	0.857
Paper and Packaging	0.953
Developers and Contractors	0.954
Banks and Finance	0.967
Infrastructure and Utilities	0.983
Tourism and Leisure	1.084
Investment and Financial Services	1.131
Chemicals	1.128
Retail	1.269
Mining and Energy	1.305
Insurance	1.394
Other Metals	1.502
Miscellaneous Industrials	1.568
Diversified resources	1.571
Gold	1.678
Healthcare and Bio-Technology	1.899
Media	2.076
Telecommunications	2.772

Source: Australian Graduate School of Management centre for research in finance; risk measurement service

The Commission notes that it is difficult to find any conclusive evidence for a specific asset beta for electricity transmission networks. Table 2.3 outlines the approach taken in recent regulatory decisions in relation to asset betas for electricity and gas.

Table 2.3 Recent regulatory decisions on asset betas for electricity and gas

Matter	Industry	Asset beta
ESC, Price determination	Electricity Distribution	0.40
ACCC, Snowy Mountains	Electricity Transmission	0.40
ACCC, NSW & ACT	Electricity Transmission	0.35-0.50
ACCC, Queensland	Electricity Transmission	0.40
IPART, Elect, DB's	Electricity Distribution	0.35-0.50
QCA, Price Determination	Electricity Distribution	0.45

2.9.1 Submissions from interested parties

SPI PowerNet proposes an asset beta of 0.585, combining the regulatory precedent of an equity beta of 1.0 with the market evidence for a debt beta of 0.31. Officer notes that adopting the debt margin suggested by underwriters of 185 basis points implies a debt beta of 0.31. Officer also suggested that it was difficult to find any conclusive evidence for a specific asset beta for electricity transmission companies.

The EUCV comments that the asset beta claimed is high and should be between 0.4 and 0.5. It also stated that the debt beta should be half the claimed amount while an equity beta of less than unity is considered appropriate.

2.9.2 Commission's considerations

The Commission maintains its view expressed in previous decisions, to adopt an equity beta, which is the average of the infrastructure, and utilities group, which at the present time lies just below 1.0. Furthermore, the Commission notes that SPI PowerNet recommended an equity beta of 1.0. The Commission concurs with Officer's view that it is difficult to find any conclusive evidence for a specific asset beta for electricity transmission. Given that most regulators have adopted a value between 0.6 and 0.4 for the asset beta, the Commission sees little compelling reason to vary from this assumption. Therefore, for the purposes of this decision, the Commission will adopt an asset beta of 0.4 and an equity beta of around 1.0.

2.10 Treatment of taxation

In recent decisions, the Commission applied the existing statutory company tax rate of 30 per cent. This was within the context of difficulties in determining a satisfactorily accurate long-term effective tax rate as part of the pre-tax real framework being used at the time. The capital-intensive nature of electricity utilities has historically meant that the effective tax rate for such networks has been less than the statutory tax rate⁶. As noted above, the Commission considers that moving to the post-tax nominal framework which uses that effective tax rate has the potential to generate more appropriate and cost-reflective revenue cap outcomes.

The effective tax rate is defined as difference between pre-tax and post-tax rates of return. It is sensitive to a number of factors, which include the corporate tax rate and the range of available tax concessions that serve to lessen tax liabilities or defer them to a later period. Although the tax rate on accounting income is always at the corporate tax rate, in any year the income assessable for tax purposes can be quite different from the net revenues available to the business. The timing aspect and the fact that taxes are assessed on the basis of nominal income means that the prevailing inflation rate also has a significant impact on the effective tax rate. The effect that deferral of tax has on the timing of cash flows does not generally cause administrative difficulties for a corporate entity that is well accustomed to uneven cash flows.

2.10.1 Commission considerations regarding the cost of capital

For the purposes of determining the cost of capital, the code requires the Commission to maintain competitive neutrality. The Commission adopted an effective tax rate of 22.61 per cent, which was derived from the financial model.

2.11 Additional matters - submissions made by interested parties

The Energy Action Group (EAG) suggests that promoting a change in the WACC and increasing the ODRC asset base will provide a substantial yield to the regulated business for a small investment in consultant's fees and the Commission's time. Further, the EAG argues that there is a clear need for all of the regulators involved across the NEM to provide a clear statement of the WACC formula for regulated businesses. This will establish a single equation and the businesses will then game changes in the business cycle, not every ACCC determination.

VENCorp raises two issues. Firstly, whether or not a beta factor of 1 is consistent with the other risk mitigation arrangements proposed by SPI PowerNet, to the extent that such factors should be taken into account in the setting of the beta factor. Secondly, the level of the regulatory WACC and the trade-offs involved in providing greater certainty to asset owners in regard to regulatory asset revaluations.

⁶ According to IPART calculations, the average effective tax rate paid by the NSW distributors amounted to 25 per cent in 1996/97 (see IPART, *The Rate of Return for Electricity Distribution Networks*, Discussion Paper, November 1998, p. 9).

2.12 Conclusion

The Commission has given careful consideration to the values that should be assigned to SPI PowerNet's cost of equity given the nature of its business and current financial circumstances. The Commission has decided to adopt a nominal risk free interest rate of 5.31 per cent, reflecting the forty-day moving average on the five-year government bonds. The Commission has arrived at a debt margin of 1.20 per cent above the nominal risk free interest rate, which results in a cost of debt of 6.51 per cent.

The Commission has looked at market evidence and accepted the advice of financial experts in determining a market risk premium of 6.00 per cent. The Commission has examined the risks faced by SPI PowerNet and the betas of similar businesses in arriving at an equity beta of just below 1.0. This figure is above the current average equity beta for the infrastructure and utilities industry group listed on the Australian Stock Exchange. The Commission will adopt an equity beta of 1.0, based on an asset beta of 0.4.

In estimating the return on equity, the code specifies that the Commission maintains competitive neutrality, therefore, for the tax and gamma parameters, it utilised the same approach adopted in *the NSW and ACT, SMHEA* and *Powerlink* revenue caps, that is a corporate tax rate of 30 per cent and a franking credits utilisation ratio of 50 per cent.

The Commission has estimated a feasible range for the cost of capital parameters, which is illustrated in Table 2.4 below. Within that range, and consistent with the discussion above, the Commission has adopted a post-tax- nominal return on equity of 11.28 per cent for the purposes of this decision, which translates to a nominal vanilla WACC of 8.42%.

Table 2.4 Comparison of cost of capital parameters proposed by the Commission

Parameter	SPI's proposal	Draft decision
Nominal Risk Free Interest Rate (R_f) %	5.99%	5.31%
Expected Inflation Rate (F) %	3.10%	2.26%
Debt margin (over R_f) %	1.85%	1.20%
Cost of debt $R_d = R_f + \text{debt margin}$ %	7.84%	6.51%
Market Risk Premium ($R_m - R_f$) %	6.00%	6.00%
Debt Funding (D/V) %	60%	60%
Value of imputation credits γ	50%	50%
Asset Beta β_a	0.585	0.40
Debt Beta	0.31	0.00
Equity Beta	1.0	1.00
Nominal Post Tax Return on Equity	11.99%	11.28%
Nominal Vanilla WACC	9.50%	8.42%

3 Opening asset base

3.1 Introduction

The revenue cap set by the Commission for SPI PowerNet commences from 1 January 2003. As part of its decision, the Commission must reach a view on the value of the non-contestable elements of SPI PowerNet's transmission assets as at that time.

The Commission's discretion in this regard is constrained by the code. Deprival value is generally defined as being the lesser of an asset's ODRC or economic cost.

To assist the Commission in determining the appropriate opening value to apply to SPI PowerNet's assets, the Commission engaged PB Associates to undertake a review of the 1994 jurisdictional valuation and SPI PowerNet's asset roll forward proposal. The main findings of PB Associates' review are outlined in section 3.4.

The remainder of this chapter:

- sets out the code requirements associated with the valuation of SPI PowerNet's opening asset base (section 3.2);
- summarises the Commission's draft decision concerning the opening asset base as well as other relevant information including:
 - SPI PowerNet's proposal;
 - the views of interested parties; and
 - a summary of the major findings of the PB Associates' review.

3.2 Code requirement

The code places limits on the ability of the Commission to exercise its regulatory discretion in arriving at an opening value for the existing asset base. Clause 6.2.3(d)(4) of the code states that the Commission is to regulate transmission network revenues according to the principles (amongst others) that:

- (i) assets created at any time under a take or pay contract are valued in a manner consistent with the provisions of that contract;
- (ii) assets created at any time under a network augmentation determination made by NEMMCO under clause 5.6.5 are valued in a manner which is consistent with that determination;
- (iii) subject to clauses 6.2.3(d)(4)(i) and (ii), assets (also known as "sunk assets") in existence and generally in service on 1 July 1999 are valued at the value determined by the Jurisdictional Regulator or consistent with the regulatory asset base established in the participating jurisdiction provided that the value of these existing assets must not exceed the deprival value of the assets and the ACCC may require the opening asset values to be independently verified through a process agreed to by the National Competition Commission;
- (iv) subject to clauses 6.2.3(d)(4)(i) and (ii), valuation of assets brought into service after 1 July 1999 ('new assets'), any subsequent revaluation of any new assets and any subsequent revaluation of assets existing and generally in service on 1 July 1999 is to

be undertaken on a basis to be determined by the ACCC and in determining the basis of asset valuation to be used, the ACCC must have regard to:

- (A) the agreement of the Council of Australian Governments of 19 August 1994, that deprival value should be the preferred approach to valuing network assets;
- (B) any subsequent decisions of the Council of Australian Governments; and
- (C) such other matters reasonably required to ensure consistency with the objectives specified in clause 6.2.2.

3.3 SPI PowerNet's proposal

Opening asset valuation

SPI PowerNet's application details its proposed opening asset valuation for the period commencing 1 January 2003, which is derived from:

- an independent Optimised Depreciated Replacement Cost (ODRC) valuation undertaken by SKM at 1 July 1994;
- rolling forward the adjusted jurisdictional valuation to 1 January 2001, based on actual capex, disposals, depreciation and its revaluation;
- determining a value for assets for which no provision was made in the 1994 jurisdictional valuation (prepared by SKM);
- including such assets in the roll-forward at 1 January 2001 to form a value for "sunk assets" for the purposes of clause 6.2.3(d)(4)(iii) of the code; and
- rolling the sunk assets valuation forward to 1 January 2003 to form the opening value of the opening asset base, which includes re-optimising the network and rolling in assets related to non-contestable excluded services.

Adjustments to the independent jurisdictional valuation

The valuation of the Victorian electricity transmission assets as at 1 July 1994 was prepared by SKM and used by the Victorian Government in formulating the Victorian Electricity Supply Industry Tariff Order (Tariff Order) as the regulatory asset based established in the participating jurisdiction.

SPI PowerNet argues that there are a number of fundamental defects in the SKM valuation. As part of their application, SPI PowerNet lists the following defects:

- the 1994 SKM valuation incorporated a harsh optimisation compared with the subsequent optimisations for other TNSPs. Approximately 12 per cent of the network was optimised down or out;
- the 1994 SKM valuation contained a large number of material errors including, phantom assets, omitted assets, incorrect in-service dates, incorrectly assigned replacements costs and incorrect modern engineering equivalents;
- there were a number of missing assets, such as system assets, easements and future terminal station sites.

SPI PowerNet contends that both GPU, the original purchaser of the PowerNet business, and SPI PowerNet has always understood that the Commission would revalue the asset base once it became the regulator for revenue setting purposes in 2003.

SPI PowerNet's proposed roll forward of the 1994 RAB valuation as at 1 January 2001

Table 3.1 outlines SPI PowerNet's actual asset acquisition, write-downs, and depreciation for the period 1 July 1994 to 1 January 2001. The written-down value of the rolled-forward asset base at 1 January 2001 is \$1,406.9 million.

Table 3.1 SPI PowerNet's proposed roll forward schedule from 1 July 1994/95 to 1 July 2000/01 (\$m)

Period starting	1994	1995	1996	1997	1998	1999	2000
Opening asset base	1,390.6	1,421.1	1,436.6	1,411.6	1,395.0	1,382.1	1,360.1
New assets (capex)	12.8	17.7	18.2	10.5	15.5	6.1	18.5
Indexation	63.1	44.6	4.9	-2.4	22.3	25.1	80.0
Depreciation	45.5	46.8	48.1	24.8	50.7	53.2	51.6
Closing asset base	1,421.1	1,436.6	1,411.6	1,395.0	1,382.1	1,360.1	1,406.9
Opening asset base 1 Jan. 2001:							1,406.9

SPI PowerNet's proposed valuation of additional assets

Table 3.2 outlines the various classes of assets for which no provision was made in the jurisdictional asset base (easements, future terminal station, system spares, communications assets and 66 kV transmission assets). Taken together, SPI PowerNet's proposed valuation of these assets is \$307.2 million as at 1 January 2001.

Table 3.2 SPI PowerNet's proposed valuation of additional assets

Additional assets	Value at 1 January 2001 \$m
Easements	231.8
Future terminal station sites	25.2
System spares	10.1
Communication assets	28.2
66 kV transmission lines	11.2
Total	307.2

SPI PowerNet's proposed roll forward schedule from 20001/02 to 2003/04

The value of the regulatory asset base as at 1 January 2001 is \$1,714.1 million. This valuation is made up of the 1994 opening asset base rolled forward value of \$1,406.9 million plus the additional assets value of \$307.2 million.

To determine the opening value of the opening asset base at 1 January 2003, the 1 January 2001 value of \$1,714.1 million is rolled forward for 2 years to include actual and forecast capital expenditure, retirements, inflation and depreciation over the period. In addition, adjustments have been made at 1 January 2003 to allow for re-optimisation and the roll-in of some services previously outside the revenue cap.

Table 3.3 outlines the results of the roll-forward and SPI PowerNet's adjustments for the opening value of the opening asset base as at 1 January 2003 (\$2,067.7 million).

Table 3.3 SPI PowerNet's proposed roll forward schedule from 2001/02 to 2003/04 (\$m)

Period starting	1 Jan. 2001	1 Apr. 2001	1 Apr. 2002	1 Jan. 2003
Opening asset base	1,714.1	1,733.8	1,734.5	2,067.7
New assets (capex)	14.8	16.6	55.5	
Indexation	18.4	42.2	32.4	
Depreciation	13.5	58.2	48.0	
Closing asset base	1,733.8	1,734.5	1,774.4	
Roll-ins for new revenue period				
VNSC			7.4	
Other excluded assets			36.1	
Re-optimisation			249.8	

3.4 Consultants' reports

3.4.1 The SKM Valuation

In 1994 SKM carried out a valuation of the electricity supply system in Victoria. The aim of the valuation was to establish the value of assets to provide opening balance sheet values for accounting and taxation for the new companies and to provide a basis for transmission and distribution pricing and tariff determination.

The SKM valuation used an ODRC methodology. Assets were valued at replacement cost on a like for like basis. Depreciation was calculated by the straight-line method. Economic lives for the various assets were similar to those used by other utilities worldwide.

Based on the above methodology, SKM concluded that:

- optimised assets should be reduced by 10 per cent of the transmission assets and 10 per cent of the subtransmission lines. This was considered to be a reasonable assessment of the installed overcapacity; and
- the total ODRC of the transmission system be valued at \$1,390 million.

SKM made no provision for easements in the valuation. It concluded that historical compensation costs would be in the range 5-7 per cent because of urbanisation, but that there was insufficient information to value easements.

On this basis, SKM arrived at a valuation of \$2.827 billion as at 1 July 1999. SKM's findings are summarised in table 3.4.

Table 3.4: SKM ODRC valuation as at 1 July 1994 (\$'000)

Asset Class	Replacement Cost	ODRC
Transmission switchgear	425,059,000	216,319,556
Transformer	286,828,200	134,794,204
Overhead line and cable	992,843,980	711,527,892
Others	48,310,00	32,168,083
SF6 DUCT @ Rowville	6,465,000	4,433,143
Series Compensation	25,862,000	18,749,950
66kV Capacitors 200 Mvar	3,200,000	720,000
Establishment plus building	103,708,850	52,779,149
Total	1,829,277	1,171,491

3.4.2 The URBIS valuation of easements

In December 1997, A.T Cocks (now operating as Urbis) conducted a replacement cost valuation of SPI PowerNet's transmission network over privately held land and does not include agreements covering Crown land or land owned by government or semi-government authorities. According to SPI PowerNet, in an exercise to verify the 1997 value, urbis has since indicated the value would likely approach \$1 billion in 2001 as SPI PowerNet has many easements over valuable inner city and urban land.

3.4.3 PB Associates' review

The Commission engaged PB Associates to undertake a review which analyses and comments on the assumptions, methodology and findings contained in the SKM report. PB Associates also considered the additional information provided to the Commission by SPI PowerNet relating to the adjustments to the 1994 valuation. SPI PowerNet's asset roll forward schedule was analysed in its review of its capex proposals.

The following comments summarise the results of PB Associates' review of the SPI PowerNet asset base:

- SPI has adopted a reasonably rigorous and detailed process to develop their 1 January 2003 opening asset base valuation for the revenue cap application;
- the value of some assets classified as "omitted assets" was added to the roll forward 1994 SKM valuation to arrive at the opening asset base valuation as at 1 January 2001. From a regulatory policy perspective, PB Associates believes that it is for the Commission to consider whether it is appropriate to add to the opening asset base assets for which no provision was made in the 1994 SKM valuation;
- one previously omitted asset class was the land for future terminal stations. SPI PowerNet included \$25.2 million as the value of these sites. PB Associates' opinion is that these sites should not be included. Another omitted asset class was the 66kV transmission lines. SPI PowerNet valued these assets at \$11.2

million. PB Associates states that its review indicated that the ODRC valuation is approximately \$7.3 million;

- for easement valuation SPI PowerNet has used a hybrid method. Actual historical costs were indexed to 2001 and added to the transaction costs estimated in 1997 and escalated to 2001. This resulted in a value of \$231.8 million. PB Associates reviewed this valuation and concluded that the maximum valuation should be \$194.7 million, based on the same methodology;
- PB Associates recommended that the optimisation process be reviewed and that some studies are re-run. Further, PB Associates states that some of the financial treatments applied by SPI PowerNet should also be reviewed; and
- if re-optimisation is performed, PB Associates believes that it should be a complete re-optimisation including land. The land optimisation has not been done as part of re-optimisation and PB Associates believes that it should be included in any re-optimisation.

Analysis of adjustments to the jurisdiction regulator's valuation

As noted previously, as part of its review, PB Associates conducted an analysis of SPI's adjustments to SKM's valuation. Each of SPI PowerNet's adjustments is discussed in turn.

Future terminal station sites

PB Associates notes that no provision for land for future terminal station sites was included in the SKM valuation. According to SPI PowerNet's application, VENCORP has indicated that it requires these blocks of land to be retained for future terminal station development, even though the new terminal stations are unlikely to be constructed within the 10-year planning horizon. However, PB Associates understood that VENCORP does not undertake planning of terminal stations and is responsible for the planning and requisition of augmentation to the shared network only. Further, PB Associates understood that the planning and directing of new connection assets is entirely the responsibility of the connection customers, in these cases the distribution companies. The Victorian distribution companies have jointly published a planning report, which details the planning of connection assets for the next 10 years. According to this report only one new substation has been planned in the above sites which will be situated in Cranbourne.

PB Associates conclude that since these blocks of land were not included in the valuation of the asset base at the time of privatisation, and since the sites are not required during the 10-year planning horizon (and the construction of Cranbourne and other new terminal stations is potentially contestable), inclusion of these blocks of land in the regulated asset base at this stage would not be necessary.

66kV Transmission Lines

According to SPI PowerNet, 66kV transmission lines were not included in the original 1994 valuation. As part of its application, SPI PowerNet has included these assets in the opening asset base. PB Associates understood that the 66kV assets were not included in the 1994 SKM valuation because, at that time, it was not clear whether the

TNSP was going to own these lines. PB Associates believes that the ownership issue has now been established and it is appropriate to include these assets into the opening asset base. However, PB Associates concludes that SPI PowerNet's valuation of these lines is excessive. SPI PowerNet had valued the 66kV transmission lines as at 1 January 2001 at \$11.2 million. PB Associates recommends a lower valuation of \$7.3 million as at 1 January 2001.

In its review, PB Associates notes that there were two lines in question, the East Rowville terminal station to Frankston terminal station double circuit 66kV tower line and the Morwell terminal station Loy Yang double circuit lines.

According to PB Associates the first line, is mostly on towers and if it were to be built today it would be built as a pole line. Further, PB Associates considered that the modern equivalent asset for a 66kV line of the rating similar to the ratings of this line is a double circuit pole line. PB Associates notes that according to SPI PowerNet's valuation, the ODRC of this line is \$5.2 million. PB Associates believed that the ODRC value of this should be \$1.3 million. PB Associates stated that for their estimation of the valuation of the 66kV line they had used the replacement cost of double circuit 66kV lines obtained from the 1994 SKM report and indexed to 1 January 2001.

PB Associates understood that in regard to the second line, the two double circuit lines are intended to provide N-2 security for Loy Yang substation.

Easements

PB Associates reviewed the methodology used by SPI PowerNet to estimate the value at which its existing easements should be rolled into the asset base. SPI PowerNet's valuation included two components:

1. The compensation paid to easement owners. SPI PowerNet has records of the compensation paid to the owners of 97 per cent of its easements. These historical costs were rolled forward to the valuation date of 1 January 2001.
2. Transaction costs. These were taken from a replacement cost valuation of SPI PowerNet's easement network over privately owner land, prepared by A T Cocks Consulting (now urbis) for SPI PowerNet's former owner, GPU PowerNet. The transaction costs in the A T Cocks report have been rolled forward from the valuation date (December 1997) to 1 January 2001. According to the A T Cocks report transactions costs includes three components, acquisition costs, solatium and landowner's cost or fixed costs.

In its application, SPI PowerNet has estimated the rolled forward value as at 1 January 2001 of the historical compensation paid to private landowners on the acquisition of easement rights was \$79.7 million. According to PB Associates, in the absence of information to the contrary, it is assumed that these payments represent the total paid directly to the landowners as compensation for the acquisition of the easement.

PB Associates notes that SPI PowerNet relied on the A T Cocks report to provide an estimate of the acquisition costs. A T Cocks valued the total acquisition costs to be \$81.7 million as at December 1997 or \$89.4 million rolled forward to 1 January 2001.

SPI PowerNet's easement valuation included in full the solatium estimated by A T Cocks, rolled forward to January 2001. According to PB Associates, SPI PowerNet has not provided any document to substantiate that solatium was paid separately to compensation. PB Associates conclude that with regard to solatium the majority of SPI PowerNet's easements would not have been subjected to a solatium payment and therefore should not be included as a separate component in the easement valuation. PB Associate's preferred approach would be to value all landowner payments on the basis of historic cost. To be consistent with this, PB Associates states that if a payment was not made to land owners, it should not be provided for in the valuation.

PB Associates conclude that for easement valuation SPI PowerNet has used a hybrid method. Actual historic costs were indexed to 2001 and added to the transaction costs estimated in 1997 and escalated to 2001. This resulted in a value of \$231.8m. PB reviewed this valuation and concluded that the maximum valuation should be \$194.7m based on the same methodology.

Re-optimisation

SPI PowerNet has proposed to value the assets entering the asset base through re-optimisation at replacement cost (\$249.6 million). PB Associates argues that SPI PowerNet's financial treatment of the re-optimised assets is different to the proposed statement s4.5 of the DRP, which states that:

assets which are optimised out of the regulatory asset base will be carried forward at the rate of return. If they are optimised back into the regulatory asset base, their value will be lesser of the carry forward value or depreciated optimised replacement cost. Where assets are reinstated into the asset base, the Commission will take into account the past level of recovery ie the written down value when removed from the regulatory asset base.

SPI PowerNet has used a different approach to that stated above. PB Associates concludes that the assets entering the asset base through re-optimisation should enter at a depreciated replacement cost of \$153.7 million.

Optimisation

PB Associates recommends that certain criteria such as load growth or forecast, planning horizon, network security and planning criteria used in the optimisation process, should be reviewed and that some studies should be re-run. PB Associates notes that in its re-optimisation exercise, SPI PowerNet did not optimise substation land. PB Associates recognises that it has been normal practice to provide for a buffer zone around terminal stations both for environmental reasons and to provide room for transmission line terminations. However, PB Associates argues that some of this land is in excess to the actual requirement.

Excluded assets

PB Associates notes that SPI PowerNet has included a number of projects to be rolled into the asset base on 1 January 2003. SPI PowerNet identifies two types of projects: non-contestable (ie those providing services to VENCORP) and connection asset projects, which provide services mainly to distribution companies. PB Associates points out that with regard to the first category of projects, VENCORP states in its revenue cap application that it has performed detailed economic assessments of these projects. PB Associates recommends that if the Commission decides to allow these non-contestable projects amounting to \$10.2 million to be included in the opening asset base, the Commission should scrutinise all the relevant details.

PB Associates notes that the other projects are mainly connection assets totalling \$25.9 million. PB Associates notes that in its discussions with SPI PowerNet, it was revealed that the values included in the revenue cap application are not the actual project costs. According to PB Associates, inclusion of these assets should be on an actual cost like basis.

3.5 Submissions by interested parties

The Energy Users Group (EAG) considers that the Commission should ensure that newly discovered assets are not rolled into the asset base and that easements are excluded from the asset base. Further, the EAG considers that the Commission should reject any attempt by SPI PowerNet to adjust the initial opening asset base.

VENCORP considers that SPI PowerNet's treatment of the re-optimised assets may not be consistent with the basic principles of the "deprival value" approach to asset valuation for revenue determination purposes. Further, VENCORP believes that such an approach would seem to defeat the purpose of optimising the asset base in the first place.

The EUCV generally commented that SPI PowerNet's application provided insufficient information to allow proper assessment of its application. The EUCV also found that the additional information provided by PB Associates' review was still insufficient for its purposes. Specifically, the EUCV commented that the regulatory asset base (RAB) should exclude omitted assets such as easements (but assets may be re-optimised in appropriate circumstances). Also, that the RAB should be adjusted for the GST spike; and previous capex incurred must meet the prudence and economic efficiency tests of the code to be included in the RAB.

3.6 SPI PowerNet's response to the consultant's report

Asset lives

SPI PowerNet believes that SKM's 1994 estimate of 70 years for the average life of the transmission line is within the plausible range.

Future terminal station sites

SPI PowerNet suggests that future terminal station sites should not be included in the opening asset base on optimisation grounds and that land at existing terminal station

sites should be optimised because, in PB Associates' view, some sites are excessively large.

SPI PowerNet believes that PB Associates' has applied a somewhat short sighted approach to what is an issue of State significance and has misunderstood one of the simplest of facts in this context – if SPI PowerNet is not paid to retain this land then it will very likely be sold off and will never again be available to the electricity industry for meeting new or growing demands for terminal station capacity. This is because no entity in the Victorian Electricity Industry has a power of compulsory acquisition and, even if someone did, it would be extremely difficult to reacquire these parcels of land once they are developed for residential or commercial purposes.

Easements

SPI PowerNet considered that its proposal is based on a synthetic historical cost approach and is solid because it overcomes the gaps and uncertainties in the historical record. Further, SPI PowerNet notes that against the background of the (essentially) replacement cost easement valuation approach used by the Commission for TransGrid and proposed recently by ElectraNet SA in respect of its easement portfolio, it would seem anomalous to strike out SPI PowerNet's claim in respect of solatium on the basis that the historical record is unclear.

Re-optimisation

SPI PowerNet agrees in a literal sense, that the approach that it has proposed for re-optimised assets is different to the approach outlined in the DRP. However, SPI PowerNet maintains that statement s4.5 of the DRP seems at odds with itself. SPI PowerNet considers that the s4.5 of the DRP proceeds on a general assumption that the replacement cost of system assets is decreasing in real terms. Given this, the result of carrying forward an optimised asset at the cost of capital could never exceed the ODRC of an asset of the same age. In SPI PowerNet's opinion there is really no expedition at all because standard optimisation techniques require that optimisation does not result in valuing an asset at more than its worth. Further, SPI PowerNet states that overwhelmingly, the use of modern engineering equivalent results in reductions in replacement cost not increases and, even if there were increases, it would be nonsensical to ask consumers to pay for high technology assets when this is not what they are being served by.

Given this, SPI PowerNet consider that an interpretation to proposed statement s4.5 that the value to be included in the opening asset base following re-optimisation would be the lesser of the carried forward value and the difference between the cost of replacing the asset now and the present value of replacing the existing asset at the end of the expected life. This approach ensures that customers are no worse off financially from the re-optimisation of an existing asset that is part way through its life, when measured on a life cycle basis against the yardstick of a completely new asset.

The consequences of applying a "fair value" constraint to the re-optimisation are that SPI PowerNet will not receive the full amount of the carried forward value. Rather, SPI PowerNet will receive \$95.9 million out of \$161.9 million attributable to foregone return and depreciation. This means that SPI PowerNet suffers a permanent penalty of \$66 million.

In regard to optimisation, its consultants (SKM and Rolib) advised SPI PowerNet that the issues raised by PB Associates do not have a material effect on the outcome of the optimisation.

Excluded assets

- SPI PowerNet notes that it does not understand exactly what PB Associates' was seeking to scrutinise in relation to non-contestable augmentation contracts, be they with VENCORP or distributors. In view of this, and the lack of specificity in PB Associate's report, some further discussion would appear to be necessary to clarify matters. In relation to the roll-in of excluded service contracts, PB Associates is quite correct that there are a number of projects for which estimated values were used to determine the roll-in value. Prior to the finalisation of the revenue cap, SPI PowerNet will be able to provide updated figures to the Commission, representing the final costing of the projects.

3.7 Commission's considerations

3.7.1 Assets for which no provision was made in jurisdictional valuation and re-optimised assets

In setting a revenue cap for the initial regulatory control period, the Commission is required under s 6.2.3(d)(4)(iii) of the code to value sunk assets at the value determined by the Jurisdictional Regulator or consistent with the regulatory asset base established in the jurisdiction, provided that this value does not exceed deprival value. Based on advice from the Victoria Government, the Commission has concluded that no value had been determined by the Jurisdictional Regulator, but that a regulatory asset base had been established in Victoria, in the form of a 1994 valuation prepared by SKM and used by the Victorian Government in preparing the Tariff Order.

The Commission has given consideration to the implications of the requirement that it value sunk assets "consistent with" this regulatory asset base and has sought independent legal advice on the issue. The Commission is of the view that the principal constraint imposed by s 6.2.3(d)(4)(iii) is that where, in establishing the regulatory asset base in the jurisdiction, a judgement has been made on the treatment of a particular asset or class of assets, the Commission cannot substitute its own judgement for that which was exercised in establishing the regulatory asset base.

However, where no judgement has been made with respect to the treatment of assets, the Commission is of the view that it is consistent with the regulatory asset base established in the jurisdiction for it to include those assets in the asset base, provided that s 6.2.3(d)(4)(iii) of the code is otherwise satisfied.

Further, where a judgement was made to exclude assets from the regulatory asset base for a particular reason, the Commission is of the view that it is consistent with the regulatory asset base for it to now include such assets in the asset base if the circumstances which lead to the particular treatment of those assets by the jurisdiction have changed in such a way as to justify a different treatment by the Commission.

For example, some assets, which were 'optimised out' of the asset base established by SKM in 1994, were in fact in existence and generally in service on 1 January 2001.

The Commission is of the view that it is consistent with the regulatory asset base for it to include such assets in the asset base if, applying the jurisdiction's approach to optimisation, the assets would be part of an optimised network in existence and generally in service as at 1 January 2001. While SKM's decision to exclude these assets was based on its judgement as to the size of an optimised network in 1994, it does not represent a judgement as to the actual size of the optimised network in existence and generally in service as at 1 January 2001.

On the specific issue of easements, the Commission notes that the Final Report prepared by SKM states (at p 17) that:

“Transmission lines are constructed on easements and the compensation costs of obtained such easements has not been included for the interim report as these are not available.

It is understood that historical compensation costs were in the range 1-2% of line costs; however today's compensation costs would be in the range of 5-7% because of urbanisation. No provision has been made in the valuation for easements.”

While SKM appears to have speculated as to a method by which easements could be valued, it also appears that its final judgement was that no provision should be made for easements. However, the reason for this judgement appears to be that SKM did not have sufficient information to undertake such a valuation. The Commission is of the view that, if it now has sufficient information it can, consistent with the regulatory asset base established in Victoria, make provision for easements in the asset base.

The Commission's considerations on this matter relate only to whether it can, under s 6.2.3(d)(4)(iii), include assets of the type discussed above in the valuation of sunk assets. It does not go to the value that the Commission would actually assign to such assets or the method that the Commission would use to undertake a valuation. In performing this task, the Commission will be guided by its DRP.

3.7.2 Analysis of adjustments to the jurisdiction regulator's valuation

Future terminal station sites

The Commission understands that the planning and directing of new connection assets is entirely the responsibility of the connection customers, in these cases the distribution companies. Further, the Commission understands that VENCORP does not undertake planning of terminal stations and is responsible for the planning and requisition of augmentation to the shared network only.

The Commission is aware that the distribution companies have planned only one new substation in the next ten years. However, the Commission recognises that traditional practice in the electricity industry has been to acquire land well in advance (in some cases up to 30 years in advance) of the actual construction of infrastructure. This approach offers some significant advantages:

- minimising costs of acquisitions by limiting the impact of encroaching development, which pushes up land prices;
- reserves the relatively large parcels of contiguous land required for terminal stations from further development for other purposes;

- allows appropriate easements over adjacent land to be established relatively easily; and
- land that is proposed to be used for future major electrical infrastructure is clearly identified so that local councils and property developers can plan their developments around such land well ahead of time, avoiding in appropriate developments close to infrastructure.

Assuming that the acquisition of land is conducted with sufficient regard to prudent planning scenarios for network development, the Commission is of the view that the forward acquisition of land is in the interests of both electricity customers, and the public generally. Furthermore, the Commission is of the view that the disposal of land originally purchased for future transmission needs should be more tightly integrated with the future plans for the transmission system.

66kV Transmission Lines

The Commission accepts the inclusion of the 66kV lines but at a revised valuation put forth by PB Associates.

Easements

Easements are rights acquired over land for use of that land in a specific way. In the case of electricity, they are rights to build, own and operate transmission or distribution wires. The terms of the easement are restrictive and usually specify the size (capacity) of the wire that may be built.

According to the DRP a replacement cost methodology should be used when valuing easements. To counter the affect of the potential increase in the capital value of easements over time, the DRP nominates the use of negative depreciation. The easements valuation would require that:

- the contribution to the opening asset base be based on the actual cost to the TNSP of obtaining the easement rights updated periodically in line with what would be the ODRC based on valuation of easement.
- to the extent that easement valuations are judged to vary over time, the variation in value should be reflected in depreciation allowances linked with the asset in precisely the same way as other assets. If the easement appreciates over time then the allocated depreciation would be negative in nominal terms and serve to offset the higher capital returns associated with the appreciating asset value; and
- if the easement right was resold, the value in the asset base should be close to the sale price given the basis for valuation updates.

However, in recent decisions, such as the *NSW and ACT* and *Powerlink* revenue cap decisions, the Commission has adopted a historical purchase cost rolled forward methodology using the CPI as the index. It is noted that this valuation methodology does not run in parallel with that prescribed by the DRP. It may be consider somewhat simplistic to simply postulate that network companies should value easements using a pure replacement cost approach, simply because this is consistent with the deprival valuation philosophy used for valuing other network assets. The Commission believes

that this approach ignores the very significant economic differences between easements and other physical transmission network assets such as lines, substations and land.

Transmission lines, substation equipment and land can generally be traded on an open market. For these assets the ODRC valuation is a reasonable approximation for what a willing, but not anxious, buyer would be prepared to pay. In other words, should the network owner have no further need for an asset, it could generally liquidate it at a price approaching the ODRC valuation. The Commission considers that in the case of easements, there is no open market and generally the only likely purchaser is the service tenement.

It seems conceptually incorrect to depreciate an easement. Electricity easements are generally granted in perpetuity, reflecting the fact that they are almost never replaced since load growth does not shift dramatically and because negotiating a new easements is a very slow, expensive process. In fact, a network service provider is far more likely to seek to alter the terms of an existing easement to allow a different sized wire to be put up rather than extinguish the easement and begin negotiating a new one.

Finally, the optimisation process is a difficult concept to apply to easements. In undertaking optimisations, most regulators accept the incremental basis on which a network was developed and allow existing transmission line routes to be assumed. However, if easement costs were to be taken into account in the optimisation process, it is doubtful that this would be appropriate. This is because assuming a network owner was deprived of all their assets, the configuration of an optimal replacement network would be very different if existing transmission line routes were not readily available.

As mentioned in section 3.5.3, SPI PowerNet states in its revenue cap application that it has adopted the Commission's preferred approach, which is an easement value based on the actual cost to the network of obtaining the easement rights escalated by CPI. However, the SPI PowerNet valuation of easements used a hybrid approach that was not based on historical values.

The SPI PowerNet revenue cap application estimates the rolled forward value as at 1 January 2001 of the historical compensation paid to private landowners on the acquisition of easement right was \$79.7 million. The Commission considers that in the absence of information to the contrary it is assumed that these payments represent the total paid directly to the landowners as compensation for the acquisition of the easements.

The *Land Acquisition and Compensation Act 1986* requires the following payments to be made to landowners affected by the compulsory acquisition of an easement for infrastructure purposes:

- compensation for the loss of value to the landowner of the land directly affected by the easement;
- compensation for the injurious affect of the easement. This is calculated by the loss of value of the land around the easement owned by the landowner, as a result of the easement being granted;
- solatium; and

- reimbursement of landowners' costs.

The transmission line replacement costs used for valuation purposes can be expected to include all planning and other costs associated with identifying and securing the line route. This would include all acquisition costs such as the costs of landowner negotiations, environmental impact and cultural heritage reports as required. The Commission considers that there would be no reason why transaction costs could not be charged against the replacement cost of the line.

The Commission in this draft decision has decided to include all land owner payments on the basis of historic cost (\$79.7 million) rolled forward to 1 January 2003 indexed by CPI.

Re-optimisation

In regard to re-optimised assets, the Commission does not believe SPI PowerNet has followed the DRP.

Statement s4.5 of the DRP states that;

“assets, which are optimised out of the regulatory asset base, will be carried forward at the rate of return. If they are optimised back into the regulatory asset base, their value will be lesser of the carry forward value or depreciated replacement cost. Where assets are reinstated into the asset base the Commission will take into account past level of recovery (that is, the written down value when removed from the regulatory asset base”.

Following s4.5, it may be considered that depreciated replacement cost may be higher than the carried forward value ie the lessor of the two values. In such situations it should be the carried forward value, that is the lessor of the two values. The Commission considers that this would be a rare exception and in most cases it will be depreciated replacement cost. Hence, the Commission will proceed on a depreciated replacement cost valuation of \$153.7 million.

It should be noted that the Commission is aware of the asymmetric risk of selectively optimising back into the opening asset base a part of the asset. There is a risk that only parts of the asset that might show an increase in value are selected for revaluation and other areas that might show a decrease are rolled-forward. However, as noted PB Associates conducted a full optimisation of the entire asset base, including the additional assets, which mitigates any risk of re-optimisation.

Excluded assets

The Commission considers the roll-in of non-contestable services outside the Tariff Order is appropriate. The Commission sees no compelling reason not to accept the additions such as the VNSC and various connection works not to be incorporated into the opening asset base for the new regulatory period commencing on 1 January 2003.

3.8 Conclusion

The Commission has determined that the value to be attributed to SPI PowerNet's opening asset base as at 1 January 2003 is \$1,815.56 million.

SPI PowerNet's additional assets

Table 3.5 outlines the value of additional assets (\$150.5 million in total) the Commission has included in the asset base as at 1 January 2001. Further, the Commission included as at 1 April 2001 (\$153.7 million in total) of re-optimised assets.

Table 3.5 Additional assets (as at 1 January 2001) (\$m)

Additional assets	SPI PowerNet Application	ACCC Draft Decision
Easements	231.8	79.7
Future terminal station sites	25.2	25.2
System spares	10.1	10.1
Communication assets	28.2	28.2
66 kV transmission lines	11.2	7.3
Total	307.2	150.5

4. Capital expenditure

4.1 Introduction

The Commission will determine SPI PowerNet's MAR taking into account the prudence of its proposed capex, future demand and service quality. The Commission undertakes this process to establish SPI PowerNet's revenue cap and to create appropriate economic drivers for investment.

Under the code, the Commission is removed from the network planning processes. As noted earlier, there is a unique arrangement in Victoria whereby SPI PowerNet owns and operates the transmission network, but VENCORP plans and directs the augmentation of the shared transmission network.

In examining SPI PowerNet's proposed capex program, the Commission is mindful that alternatives to capex proposals can include improvements in opex programs, demand side management and new generation. The Commission will also consider whether or not SPI PowerNet has struck an appropriate balance between capex, opex and overall reliability. Finally, the Commission is aware that a careful distinction needs to be made between ongoing opex programs and the asset renewals portion of SPI PowerNet's capex programs. Some judgement is needed as to whether such proposals should be expensed or capitalised.

These issues are included in the Commission's consideration of both the proposed capex and opex programs and their significance to the overall revenue cap.

The remainder of this chapter:

- sets out the code requirements relevant to the inclusion of capex in a TNSP's asset base (section 4.2);
- summarises the Commission's draft decision concerning the inclusion of SPI PowerNet's projected capex into the present regulatory period as well as the information considered by the Commission in arriving at that conclusion. This includes:
 - SPI PowerNet's capex proposal for the regulatory period (section 4.3);
 - a summary of the major findings of PB Associates' review (section 4.4);
 - submissions by interested parties (section 4.5);
- sets out the Commission's considerations (section 4.6); and
- summarises the Commission's conclusions in this regard (section 4.7).

4.2 Code requirement

The Commission's task in assessing SPI PowerNet's capex is specified in the code. In particular, Part B of Chapter 6 of the code requires *inter alia* that:

- in setting the revenue cap, the Commission must have regard to the potential for efficiency gains in expected operating, maintenance and capital costs, taking into account the expected demand growth and service standards; and

- the regulatory regime seeks to achieve an environment which fosters efficient use of existing infrastructure, efficient operating and maintenance practices and an efficient level of investment.

To undertake its task, the Commission needs to make informed decisions on the adequacy, efficiency and appropriateness of the capex planned by SPI PowerNet to meet its present and future service requirements. To this end the Commission engaged PB Associates to review SPI PowerNet's proposed capex program. The results of PB Associates' review are summarised in section 4.4.

4.3 SPI PowerNet's application

4.3.1 Forecast capex

The Victorian transmission arrangements are uniquely structured. SPI PowerNet owns and maintains the majority of Victoria's transmission network assets and provides bulk network services under an agreement with VENCORP. SPI PowerNet also negotiates connection service agreements directly with generators and distribution bodies. VENCORP provides users with shared transmission network services and plans and directs the augmentation of the shared network.

Consequently, SPI PowerNet's future capex requirements do not relate to network growth but are planned to reflect system replacements, additions and refurbishments as well as non-system asset requirements over the regulatory period.

SPI PowerNet states that it has focussed on cost reduction and the absorption of excess network capacity. However, system conditions have altered over the last 8 years and the system is now more stressed. The diminishing remaining technical life of its equipment and a significant increase in peak summer load are 2 major reasons for the change which has led to a recent increase in expenditure, which is expected to continue over the next 20 years.

In view of its forecast requirements, SPI PowerNet proposes capex totalling \$351.35 million (nominal) over the period 1 January 2003 to 31 March 2008.

SPI PowerNet has commenced a major asset replacement program including the rebuilding of terminal stations (which commenced in 2001 and is scheduled to continue until 2017). Under its capex planning program, system asset replacement is based on a forecast of assets that will reach the end of their expected technical lives during the regulatory period. System additions and refurbishments are undertaken in response to factors such as environmental requirements or equipment condition analysis. Non-system assets are included in capex plans and cover assets such as information technology and business support facilities. SPI PowerNet coordinates its capex plans with its maintenance plans.

Table 4.1 SPI PowerNet's forecast capex 2003 to 2007/08 (average 2001/02\$m)¹

	2002	2003	2003 ³	2004	2005	2006	2007	2008
System asset replacement	8.0	13.1	3.3	31.4	36.5	27.9	47.1	55.7
System additions ² and refurbishments	5.7	55.7	11.7	27.3	20.7	15.8	15.8	9.7
Information technology	1.0	4.6	1.2	5.6	1.6	4.7	3.4	2.2
Business support facilities, equipment, vehicles and special tools and equipment	2.9	1.3	0.3	1.7	1.9	1.5	1.6	1.2
Total	17.6	74.6	16.4	66.1	60.6	49.9	67.8	68.7

1. Capex associated with VNSC is included, however it does not enter that RAB for return purposes until

1 January 2003

2. Additions are not augmentations, but small upgrades necessitated by changes as regulatory changes

3. This is data for a three-month period, 1 January 2003 to 31 March 2003

Source: SPI PowerNet forecasts - SPI PowerNet's Revenue Cap Application

SPI PowerNet's capex plans have identified that significant expenditure will be required on primary systems, including switchbays (28% of expenditure), and secondary system assets (22%) such as plant protection, control and monitoring systems. The VNSC (Victorian Network Switching Centre) is also scheduled for a major upgrade.

4.3.2 Major drivers of increased expenditure

SPI PowerNet identifies the age of its transmission network as the major driver of capex during the regulatory period. Network assets are now past mid-life on average and some will reach the end of their expected technical lives in the next 6 years. This will lead to a noticeable increase in capex when compared to the previous period. For example, terminal stations installed 40 to 50 years ago will soon require replacement.

SPI PowerNet also lists environmental remediation, technological change and increasing network utilisation as other drivers of increased capex in the coming regulatory period.

4.4 Consultant's review

PB Associates was engaged by the Commission to analyse and comment on the assumptions, methodology and findings on capex contained in SPI PowerNet's application.

The main conclusions and recommendations of PB Associates' review are:

- While SPI PowerNet’s application generally deals with capex at a high level, requiring further information to be sought in some areas, the information presented has been thoroughly prepared and is material to the application;
- SPI PowerNet has comprehensive and effective Asset Management procedures in place. Recommendations from Indec Consultants’ 2001 report, which identified certain deficiencies, are being implemented progressively;
- The economic lives of assets established in the 1994 jurisdictional valuation indicate that major parts of the network have reached or are approaching the end of their lives. SPI PowerNet’s capex program realistically reflects the future needs for replacement and refurbishment;
- Capex is higher for the 2003/08 regulatory period than it has been previously, although there has been a significant increase in 2002. A major capex program could possibly have started earlier but a detailed study would be necessary to determine if this would have been justified. SPI PowerNet has identified several factors driving the recent increase in forecast capex;
- The projects planned over the regulatory period are justified and appropriate. The 2004 financial year was examined in some detail and the expenditure found to be justified and realistic; and
- SPI PowerNet’s capex plans for the replacement of relatively old systems with new technology are appropriate and should improve operation and maintenance.

Asset Management System effectiveness

SPI PowerNet’s Asset Management Plan is made in accordance with key documents consisting of its Asset Management Strategy, Asset Condition Reports and Indec Consulting’s Integrated Asset Management Review, 2002.

The Asset Management Strategy is a comprehensive and evolving document that incorporates performance targets, responsibilities for asset management, and reasons for replacement and refurbishing decisions. These decisions are made after evaluating a number of factors including incident reports, field reports, and information from the Maximo asset management information system. Age and physical condition of the asset are considered along with other matters such as environmental requirements. SPI PowerNet’s Business Review Committee considers matters costing \$50,000 or more.

PB Associates notes in its review of SPI PowerNet’s application that there is a large step increase in capex from 2003 onwards compared to the preceding period

Increased expenditure

PB Associates’ review discusses the reasons for this steep increase in capex and makes the following findings:

Adequacy of expenditure

PB Associates believes that due to the ageing of assets and increased loads, SPI PowerNet's capex plans for the replacement and refurbishment of the existing system are conservative and reasonable. Additions to the system are also required to meet environmental and service standards.

Maintainability

PB Associates states that access to spare parts and manufacturers' support is necessary to system maintenance. Older equipment may have limited support available. SPI PowerNet's proposed capex is realistic with replacements necessary to ensure adequate spares and support are available to avoid lengthy out-of-service periods.

Expenditure scheduling

PB Associates states that SPI PowerNet has already commenced a major capex program from the 2002/03 financial year and this will continue throughout the regulatory period, 2003 to 2007/08. The increased expenditure is carried out under SPI PowerNet's Asset Maintenance Strategy and takes into account circuit breaker and transformer age profiles, environmental remediation requirements, recent technological developments, and increased requirements on SPI PowerNet to coordinate terminal station and connection asset upgrades. It would take a detailed study to determine whether an earlier start to major capex projects would have been justified.

Effectiveness

PB Associates believes that SPI PowerNet's capex program is amply justified and reasonable. Savings could be possible but may be outside SPI PowerNet's control, such as exchange rate fluctuations. There is no indication that SPI PowerNet is proposing ineffective or unnecessary expenditure.

Analysis of 2003/04 projects

PB Associates also analysed specific projects for 2003/04 as part of its overall review of SPI PowerNet's proposed capex. Assets associated with approximately 50 per cent of the primary projects were assessed. The replacements were largely driven by the age of the equipment. PB Associates summarises the replacements scheduled for 2003/04 as reasonable in light of the age of the assets. The few relatively early replacements are also considered reasonable due to their particular function, such as capacitor switching.

4.5 Submissions by interested parties

SPI PowerNet's response to PB Associates' capex report

SPI PowerNet has provided comments on PB Associates' review of its capex. PB Associates' comparison of historic and forecast capex from 1995 to 2008 (figure 4.4 in this decision) is based on the date the assets were commissioned. SPI PowerNet emphasises that this does not reflect the progressive spending made each year. For example, for a large project that spans two years such as the replacement of ground wire with OPGW between Melbourne and Wodonga, the full value is captured in 2002/03 although more than one third of the expenditure occurred in 2001/02. Calculated on an accruals basis, capex for 2001/02 was \$34.1 million, rather than the

\$17.6 million noted in SPI PowerNet’s application (which used the date of commissioning).

SPI PowerNet also does not agree with PB Associates’ statement that there is little incentive for a TNSP to advance major capex projects under the current regulatory regime, “unless the expenditure is part of earlier proposals and there could be some prospect of efficiency gains.” SPI PowerNet points out that it has “contractual and regulatory obligations to provide transmission services in accordance with good electricity industry practice and a range of service benchmarks.”

Submissions by other parties

The EUAA highlights the need for PB Associates to examine SPI PowerNet’s capex proposal in detail. EUAA also raises questions concerning the timing of expenditure and the amount of the efficiency carry-over claimed.

VENCorp notes that PB Associates’ report found that there is no indication that SPI PowerNet is proposing to spend ineffectively or unnecessarily. However, VENCorp also believes that the Commission should assure itself whether there has been a deferral of replacement expenditure over the first regulatory period.

It also states that the Commission should also establish more effective regulatory mechanisms in relation to SPI PowerNet’s capex to ensure efficiency and that the Commission should assess the potential for efficiency gains to be made in the coming regulatory period.

The EUCV comments that SPI PowerNet’s application provided insufficient information to allow proper assessment of its application and also found that the additional information provided by PB Associates’ review was still insufficient for its purposes.

4.6 Commission’s considerations

Based on PB Associates review the Commission is satisfied that SPI PowerNet has developed a forward-looking Asset Management plan that identifies future asset replacement and refurbishment requirements.

The Commission notes that PB Associates examined the reasons for the steep increase in capex from 2003 and found that, due to the ageing of assets and increased network loads, SPI PowerNet’s capex plans were conservative and reasonable. PB Associates also concludes that SPI PowerNet’s capex program is amply justified and reasonable and that there is no indication that SPI PowerNet is proposing ineffective or unnecessary expenditure.

The Commission notes that, in respect of lines and transformers, SPI PowerNet has responded to PB Associates’ finding that it does not have an integrated management plan for these assets. SPI PowerNet has provided the Commission with specific details of its asset management program for lines and transformers that form part of its overall system expenditure plans.

Furthermore, the Commission is comfortable that SPI PowerNet’s capex program realistically reflects its future needs for replacement and refurbishment of its ageing asset base. Environmental requirements are also important in driving expenditure.

Pass-through events

As a general matter, the Commission will consider applications for a pass-through of costs from a TNSP on a case by case basis. Pass-throughs are normally required due to unexpected or extraordinary events occurring that the TNSP has not otherwise covered in its risk management strategy, for example, by insuring against that likelihood.

SPI PowerNet has proposed comprehensive pass through rules for defined events such as a change in taxes, terrorism, insurance and service standards. The Commission is currently assessing the implications of these rules and will reserve its view until the final revenue cap decision is issued.

The Commission notes that a range of factors may affect the actual capex costs experienced during the regulatory period, including the progressive implementation of Indec Consulting’s recommendations, unforeseen technological change and exchange rate fluctuations on imported equipment.

4.7 Conclusion

Based on the Commission’s analysis of forecast capex and PB Associates’ review of SPI PowerNet’s Asset Management Plan, including its analysis of particular projects scheduled for 2003/04, the Commission concludes that SPI PowerNet’s capex proposal is appropriate in the circumstances. The Commission has taken into account that SPI PowerNet’s capex requirement is limited to the replacement or refurbishment of assets, and does not encompass network growth projections.

Accordingly, the Commission will allow capex of \$360.22 million (nominal) over the regulatory period as detailed below:

Table 4.2:SPI PowerNet capex: 1 Jan ‘03 to 31 Mar ‘08 (nominal \$m, excl GST)

	Q1 2003	2004	2005	2006	2007	2008
Total capex	15.3	68.58	63.79	54.31	75.95	82.29

5 Operating and maintenance expenditure

5.1 Introduction

The Commission, as part of its process for determining SPI PowerNet's MAR, will assess SPI PowerNet's capacity to achieve realistic efficiency gains in its proposed opex with regard to future demand and service quality. Opex is also an important source of savings and productive efficiencies over the short to medium term as it represents a large proportion of SPI PowerNet's variable costs.

The Commission will focus on SPI PowerNet's use of benchmarking, based on domestic and international best practice, as a guide to setting, testing and adjusting targets in the planning and management of opex programs. In addition, the Commission will consider whether or not SPI PowerNet has adopted an appropriate balance between opex and capital expenditure. Finally, efficient opex is a key source of the overall productivity gains that the Commission will consider in determining the incentive outcomes for SPI PowerNet's revenue cap.

The remainder of this chapter:

- sets out the requirements of the code (section 5.2);
- summarises the Commission's draft decision concerning the appropriate level of opex to be allowed in the present regulatory period as well as the information considered by the Commission in arriving at that conclusion. This includes:
 - SPI PowerNet's opex proposal for the regulatory period (section 5.3);
 - a summary of the major findings of PB Associates' review (section 5.4);
 - submissions by interested parties (section 5.5);
 - sets out the Commission's considerations (section 5.6); and
 - a summary of the Commission's conclusions in this regard (section 5.7).

5.2 Code requirement

The Commission's task in assessing SPI PowerNet's opex is specified in the code. In particular, Part B of Chapter 6 of the code requires *inter alia* that:

- in setting the revenue cap, the Commission must have regard to the potential for efficiency gains in expected operating, maintenance and capital costs, taking into account expected demand growth and service standards; and
- the regulatory regime must seek to achieve an environment which fosters efficient use of existing infrastructure, efficient operating and maintenance practices and an efficient level of investment.

To undertake its task, the Commission needs to make informed decisions on the adequacy, efficiency and appropriateness of the opex planned by SPI PowerNet to meet its present and future service requirements. To this end the Commission engaged

PB Associates to review SPI PowerNet's opex program. The results of PB Associates' review are summarised in section 5.4.

5.3 SPI PowerNet's application

5.3.1 Forecast opex

SPI PowerNet's application outlines opex totalling \$402.7 million (nominal) or \$360 million for the period 1 January 2003 to 31 March 2008. SPI PowerNet submitted a variation to its forecast opex on 31 May 2002 as a result of updated cost allocation data based on its audited (statutory) accounts for the period 1 April 2001 to 30 March 2002.

A bottom-up analysis is used to forecast opex and capex requirements. SPI PowerNet's Asset Management Strategy and associated policies provide short, medium and long-term expenditure forecasts, which are used to produce maintenance and capital plans

SPI PowerNet notes that the increase in forecast opex under the regulatory period is largely due to the change in the scope of services going from the Victorian Tariff Order regime to the National Electricity Code regime (discussed in Chapter 3 of SPI PowerNet's application).

As Table 5.1 shows, SPI PowerNet categorises opex into 3 types:

- system recurrent expenditure – regular activities, eg. plant maintenance;
- system non-recurrent expenditure – one-off programs, eg. corrosion abatement; and
- non-system expenditure – eg. corporate support functions.

SPI PowerNet states that each type of expenditure has individual drivers in relation to cost and efficiency. As with capex, the ageing of the transmission network is the single most important driver of increased expenditure. Increasing network utilisation is also responsible for increased opex, for example, out-of-hours work required to deal with scheduled outages. Approximately 80 per cent of SPI PowerNet's forecast opex is attributable to system expenditure.

System – recurrent expenditure

Routine system maintenance is the major cost in this category (49 per cent). Other costs include system operations, which encompasses the VNSC (8 per cent), rebates paid to VENCORP (14 per cent), taxes and leases (10 per cent) and support (11 per cent). Routine maintenance costs are expected to remain fairly static over the regulatory period.

System – non-recurrent expenditure

This category consists of one-off costs that will vary significantly from one regulatory period to another. Major activities scheduled between 2003 and 2007/08 include corrosion abatement plans, repair of equipment fleets, upkeep of terminal station buildings and grounds, and condition assessments, which are required due to the ageing asset base.

Non-system expenditure (including uninsured risks)

This category consists of corporate support functions and includes finance, HR, IT and a provision for uninsured risks. Uninsured risks are risks that SPI PowerNet cannot insure cost effectively and for which it does not otherwise receive compensation. An actuarial assessment was commissioned from Trowbridge Consulting who analysed the costs of bearing such risks. The major components of uninsured risks that were identified are liability insurance (\$248,000), easement disputes with landowners (\$175,000), and the costs of handling public liability claims (\$100,000).

5.3.2 Cost allocation

SPI PowerNet states that assets are tagged according to whether revenue-capped or non-revenue-capped services are provided. Direct maintenance expenditure on each asset is tracked accordingly. Overheads are allocated using a hybrid activity-based marginal costing approach. SPI PowerNet considers this is an appropriate approach in the circumstances as 3 per cent of its business relates to non-revenue-capped services.

5.3.3 Opex cost benchmarks

In regards to controllable opex costs, SPI PowerNet notes that ESAA data shows that its average controllable opex cost rate is 40 per cent less than the average of the peer group. SPI PowerNet states that its position has been achieved by significant cost cutting while still maintaining the highest levels of network performance. However, SPI PowerNet notes that further substantial efficiencies are unlikely due to the increasing age and utilisation of the network necessitating increased expenditure in future.

SPI PowerNet commissioned an assessment of its opex costs - Indec Consulting's *Stand-alone Cost Model Final Report August 2001* - as a further check of the efficiency of its opex performance. The model benchmarks controllable costs and applies industry best practice benchmarks in its analysis.

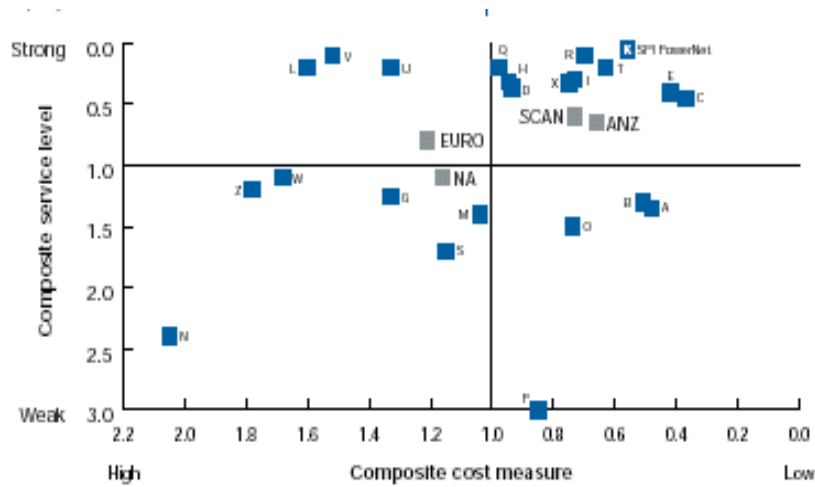
The report found that:

- SPI PowerNet has the highest level of reliability in Australia while maintaining a low level of opex costs;
- SPI PowerNet is well below the industry average level of opex;
- SPI PowerNet has the most efficient level of opex in the transmission industry relative to throughput, capacity, and level of reliability; and
- on a total cost basis, SPI PowerNet is well below the industry average.

Notwithstanding its low opex costs, SPI PowerNet notes that benchmarking studies confirm that network service performance has not been diminished. In terms of circuit availability, SPI PowerNet is the leading performer in Australia according to ICTPS and ESAA data provided in its application.

SPI PowerNet notes that the ITOMS study demonstrates that SPI PowerNet is also a leading transmission business internationally.

Figure 5.2 Transmission line maintenance composite benchmark



1 Includes overhead line patrol and inspection 100–199 kV (8.2%), overhead line maintenance 100–199 kV (23.7%) and 200+ kV (21.2%), right-of-way maintenance (38%) and pro-rated support services costs

2 SPI PowerNet is company K

Source: International Transmission Operations & Maintenance Study 2001 (rules require results to be masked)

Composite performance benchmarks indicate that SPI PowerNet is equally efficient in relation to substation operations and maintenance.

5.4 Consultant’s report

PB Associates was engaged by the Commission to undertake a review which analyses and comments on matters in relation to the contribution of opex to SPI PowerNet’s delivery of transmission services.

5.4.1 Summary of findings

The main findings of PB Associates’ report are summarised below:

- the significant increases in opex from 1998 to 2003/04 are due to a range of matters including the transfer of VNSC to SPI PowerNet and adjustments to the transmission circuit availability incentive scheme with VENCORP (rebate scheme);
- SPI PowerNet is showing an increasing trend in opex (over the regulatory period) after achieving significant opex reductions in earlier years (\$60m cumulative from 1995/96 to 1999/200). This is due to increasing asset age and changes in business scope for regulatory purposes.
- asset management practices are considered effective although there would appear to be some potential for further improvement which could result in further cost savings.

- cost allocations between regulated and unregulated business segments and the treatment of common costs and overheads are considered appropriate;
- the Indec Consulting review placed SPI PowerNet in the highest 10 per cent of organisations reviewed. SPI PowerNet has established a range of initiatives to address the deficiencies identified in the review;
- asset replacement is capitalised if a complete asset recorded on the asset register is replaced or if the service life or efficiency/economy of operation of the asset unit, not just the replaced component, is significantly improved;
- maintenance cost forecasts are based on detailed analysis and equipment condition information and are considered appropriate;
- forecast non-recurrent maintenance expenditure such as tower painting is considered appropriate;
- costs associated with the transfer of VNESC to SPI PowerNet, the rebate scheme with VENCORP, and taxes and leases are considered appropriate;
- SPI PowerNet's exposure to the \$6 million rebate scheme with VENCORP should reduce with increased equipment availability such as additional strategic spares;
- SPI PowerNet has proposed \$0.8 million pa for non-insured risk identified events such as liability claim insurance and easement disputes;
- SPI PowerNet is one of the top performers in the ITOMS study and has made significant improvements.

5.5 Establishing operating expenditure

PB Associates notes that SPI PowerNet develops its budgets using an expected value approach. The relative proportions of each category are: deterministic expenditure (70 per cent), probabilistic expenditure (22 per cent), risk provision (6 per cent) and contingency provision (2 per cent) SPI PowerNet has proposed that certain events will be dealt with via a pass through mechanism, such as terrorism, and has therefore not made a specific provision for such costs.

PB Associates states that the 6 per cent risk provision for identified events includes \$0.8 million pa for non-insured risks. This includes amounts for liability claim insurance, easement contractual disputes and handling public liability claims. PB Associates concludes that Trowbridge Consulting's approach to quantifying the revenue provision for such risks seems reasonable. There is also an allowance claimed of \$0.3 million for self-insurance of towers and wires based on an actuarial assessment by Trowbridge Consulting.

PB Associates states that the 2 per cent contingency provision for unidentified events makes allowance for events that cannot be passed through and are not covered by specific risk provisions. SPI PowerNet's application did not identify specific risks but SPI PowerNet subsequently provided examples of potential expenditure that may arise, eg. replacement of assets before their classified life. However, these costs are classified as depreciation and not as opex. PB Associates has been unable to assess whether the

provision is reasonable or to confirm that the risks have not been covered in other provisions of SPI PowerNet's application. The provision for risk seems to have been comprehensively covered.

5.6 Asset management practices

PB Associates states that the Asset Management Strategy provides high-level guidance for the development of opex and capex programs. It sets out broad strategies and policies and a wide range of information is input to formulate maintenance and capital forecasts. Maintenance and capital plans are then developed. PB Associates notes that detailed plans have not been established for some key assets such as transmission lines and transformers. SPI PowerNet uses the ITOMS studies to review and update its opex practices.

PB Associates states that the recent Indec Consulting review may lead to efficiencies not presently allowed for in SPI PowerNet's expenditure forecasts. SPI PowerNet is currently implementing Indec Consulting's recommendations, including post project reviews for all projects over \$0.5 million and the extension of the Maximo maintenance management system. PB Associates considers that the proposed improvements are likely to lead to further cost savings.

5.7 Accounting practices

5.7.1 Capitalisation policy

PB Associates notes that SPI PowerNet has continued with the same capitalisation policy since the transmission business was privatised in 1997. In general, expenditure is capitalised if it:

- replaces the existing asset/component with an asset/component that increases the functionality or capacity of the system;
- replaces the existing asset/component with a new asset/component that extends the service life of the system beyond its expected service life; or
- significantly reduces ongoing maintenance expenditure.

5.7.2 Cost allocation

PB Associates notes that SPI PowerNet uses the Oros system to allocate costs between the regulated and unregulated lines of its business. The Maximo costing system identifies direct and indirect costs. Centralised costs such as HR and IT are allocated using drivers that represent usage. Overheads that cannot be fully allocated to a particular part of the business are allocated to the regulated business on the basis that only 3 per cent of SPI PowerNet's business is from non revenue-capped services.

PB Associates considers that a suitable cost driver, such as the proportion of the asset base in each part of the business, should be used to make such allocations. SPI PowerNet advises that this would increase the revenue capped allocation by \$110k.

5.7.3 Performance comparisons

PB Associates notes that the change in relative position is as important as the absolute comparison. There have been \$60 million nominal cost savings from 1995/96 to 1999/00, much of it due to a 50 per cent reduction in staff numbers. The initiatives taken over the period achieved real savings. However, costs are now increasing primarily as a result of the ageing asset population.

5.7.4 Benchmarking studies

Approximately 20 international transmission companies participate in the ITOMS survey, which is conducted every 2 years. PB Associates notes that the results below indicate that SPI PowerNet has made significant improvements and is now a best performer for substations and lines, surpassing the Australian average.

Figure 5.9 ITOMS composite substation performance

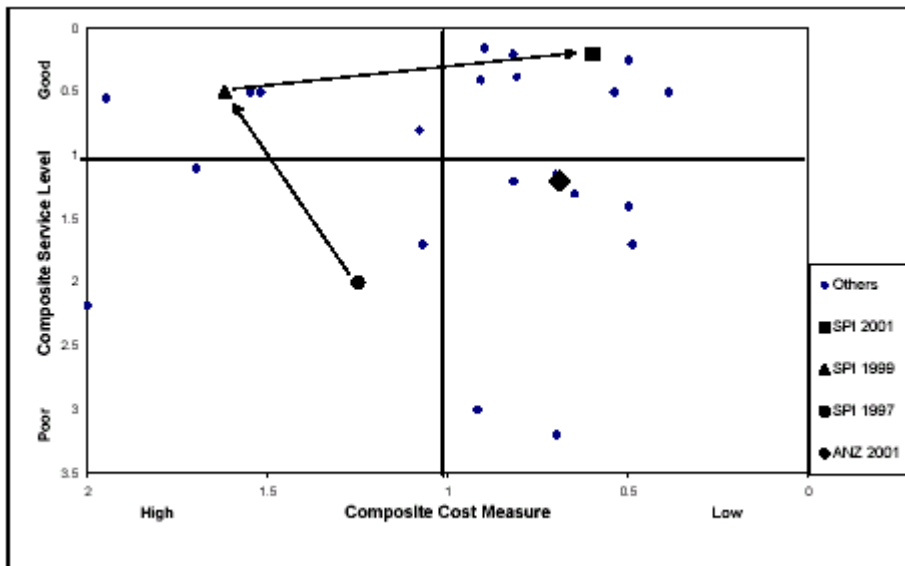
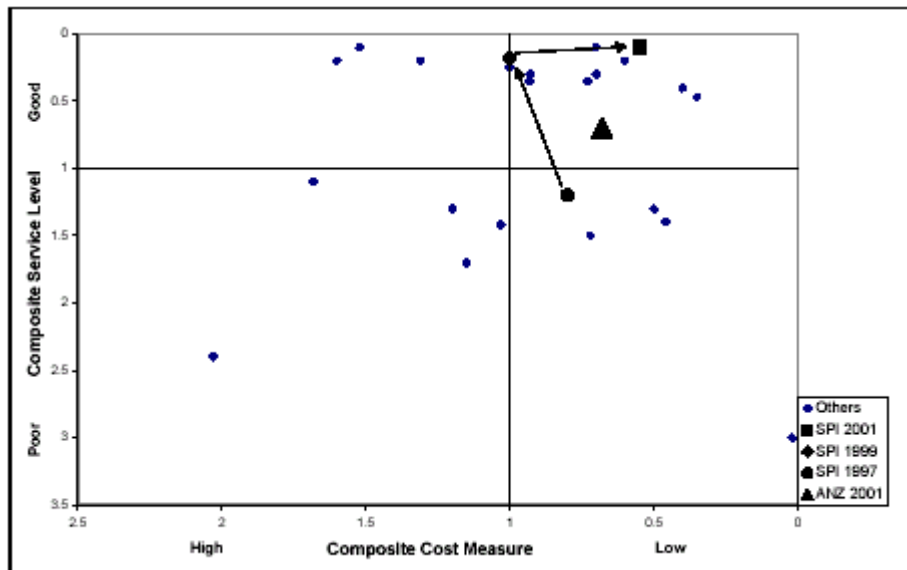


Figure 5.10 ITOMS composite line performance



5.5 Submissions by interested parties

5.5.1 SPI PowerNet's response to PB Associates' report

SPI PowerNet has provided comments on PB Associates' review of its opex. It states that there is no support for PB Associates' claim that there is a lack of integrated asset management plans, particularly for lines and transformers. SPI PowerNet maintains that there is no danger that assets will not be properly maintained. As evidence, SPI PowerNet has provided details of its integrated Asset Management approach to these assets. For example, lines are subject to routine patrols and inspections with recurrent maintenance performed on a programmed basis. Condition assessments are also performed on selected lines. All information is fed into the decision making process for non-recurrent opex and replacement expenditure. A thorough evaluation is made before committing expenditure and will often involve discussions with connected parties and VENCORP. A similar process is carried out for transformers.

SPI PowerNet also notes that Indec Consulting did not reach the same conclusions as PB Associates. SPI PowerNet anticipates preparing a comprehensive document that will make linkages between its Asset Management Strategy and various expenditure plans more apparent and verifiable.

PB Associates stated that a suitable allocator of indirect costs between the contestable and non-contestable parts of SPI PowerNet's business was asset value. SPI PowerNet points out that, consistent with clause 3.3 of the Commission's Information Requirements Guidelines, the basis of allocation is avoidable cost.

SPI PowerNet states that the effect of system related opex and capex on the quantum of rebates payable to VENCORP is likely to be immaterial for a variety of reasons, including the fact that expenditure increases are largely related to maintaining current levels of performance, rather than increasing them. SPI PowerNet emphasises that the intention of the rebate scheme is to change behaviour related to outages and not to fund

opex or capex initiatives. The rebate scheme functions to provide operational incentives.

PB Associates stated that it was not able to assess whether the 2 per cent contingency provision is reasonable or to confirm that the risks have not been covered in other provisions in SPI PowerNet's application. SPI PowerNet states that risk provisions and pass through rules have been formulated for identified events. It believes making a contingency provision for unidentified events is prudent and it would appear that PB Associates has no issue with this in principle. SPI PowerNet states that the contingency provision, by its very nature, is an estimate of the probable value of items not captured in its bottom-up forecasting. SPI PowerNet also believes that the quantum of the provision is minor in the context of the overall opex and capex programs and could have been higher without a rigorous forecasting process in place.

5.5.2 Other responses by interested parties

The EUAA states that SPI PowerNet's proposed opex appears modest and reasonable when compared to its asset base. The EUAA believes opex should be benchmarked, as it is the only controllable network cost.

The EUCV states that the increased opex claimed does not demonstrate that SPI PowerNet's performance will also be enhanced. It therefore recommends that SPI PowerNet's opex should be maintained at current levels. EUCV notes that additional information supplied to PB Associates has not been made available to interested parties. Also, that the review does not recommend that possible future cost savings should be built into the opex structure, or that the opex budget should be reduced accordingly. In regard to the benchmarking studies, EUCV noted that PB Associates failed to note that SPI PowerNet's past performance as measured in the ITOMS data was achieved with significantly lower capex and opex programs than with what is being proposed. Finally, EUCV notes that PB Associates' review does not compare budgeted opex with the opex actually spent.

Powerlink states that any comparison of opex with other TNSPs should be based on the combined costs of SPI PowerNet and VENCORP. Powerlink has made suggestions to modify PB Associates' report to show the combined opex of those bodies, as it believes it is more relevant for comparison purposes with other TNSPs. Although this would not alter the conclusions regarding SPI PowerNet's level of efficiency, however, Powerlink believes that it would increase the robustness of the report.

VENCORP agrees that SPI PowerNet should benefit from genuine efficiency gains and notes that the ESC has undertaken considerable analysis of this area, including the design of effective carry-over mechanisms. VENCORP submits that the Commission should undertake a detailed analysis of incentive arrangements as part of its revenue cap determination, as well as setting out the arrangements to be applied for the 2008 reset.

The EAG agrees with the need to provide for adequate spare parts in view of the refurbishment required for ageing assets. However, it believes the \$70k amount claimed for SPI PowerNet's senior executive replacement program should not be allowed.

5.6 Commission's considerations

The Commission is satisfied that PB Associates thoroughly reviewed the methodology and underlying assumptions employed by SPI PowerNet in forecasting opex which was found to be reasonable and appropriate. PB Associates' examination of the classification of opex was also comprehensive and detailed.

5.6.1 Forecasting opex

SPI PowerNet requested a provision for opex that increases from \$67.3 million to \$69.0 million pa over the regulatory period, an increase of 2.5 per cent. PB Associates found the increased opex was largely due to the age of SPI PowerNet's assets. PB Associates assessed the proposed figures and methodology used in SPI PowerNet's forecast opex.

The Commission notes that PB Associates' review found SPI PowerNet's recurrent and non-recurrent maintenance cost forecasts to be appropriate as well as the 2 per cent salary increase claimed in its application. The review also found a comprehensive cost allocation system in place with an appropriate treatment of common costs and overheads.

5.6.2 Benchmarking

SPI PowerNet provided information regarding its performance across a range of opex and network performance benchmarks, both nationally and internationally.

The Commission notes PB Associates' review of Indec Consulting's Stand-Alone Cost Model Report which confirmed that SPI PowerNet's total costs are below the industry average, and that SPI PowerNet has the most efficient level of opex in the transmission industry relative to throughput, capacity and reliability level.

PB Associates also reviewed ESAA information comparing SPI PowerNet's opex on a "per asset" and "per MWh" basis with other TNSPs. It found SPI PowerNet was comparable with Powerlink and more efficient than TransGrid.

The results of the ITOMS studies were also examined by PB Associates which found that SPI PowerNet has made significant improvements and is now a best performer for both substations and lines. PB Associates concluded that independent benchmarks show SPI PowerNet to be a very efficient transmission operator.

5.6.3 Scope for future efficiency gains

The Commission notes that PB Associates believes further cost savings may be possible as a result of implementing Indec Consulting's Asset Management review recommendations. However, SPI PowerNet believes that, due to its strong cost reduction program to date, only innovation will lead to significant cost savings and this is unlikely to occur during the current regulatory period.

Increased opex costs

SPI PowerNet states that a significant reason for the increase in opex is the expansion in the scope of its regulated business, such as the transfer of the Victorian Network Switching Centre to its asset base from 1 January 2003. The ageing of the asset

population is also a key reason for increased opex. The Commission notes that PB Associates' review found SPI PowerNet's forecast opex to be appropriate given the age of the assets and other identified drivers of expenditure.

The Commission has considered the following expenditure items further in determining SPI PowerNet's opex requirements over the regulatory period:

5.6.5 Non-insured/self-insured identified risks

- SPI PowerNet has claimed an allowance for non-insured risks of \$0.8m pa for identified events based on an actuarial assessment by Trowbridge Consulting. The major non-insured risks identified are liability insurance (\$248,000), easement disputes with landowners (\$175,000), and the costs of handling public liability claims (\$100,000). In Trowbridge Consulting's view, these are diversifiable risks and therefore no allowance should be made for them in SPI PowerNet's asset beta. However, it would normally be expected that diversifiable risks are also insurable risks. Trowbridge Consulting states in its report that it was unable to obtain quotes for some of these risks.
- SPI PowerNet has also claimed an allowance for self-insurance of towers and wires of \$355,000 pa based on an actuarial assessment by Trowbridge Consulting. SPI PowerNet previously insured these assets externally but there have been recent premium increases and changes in policy conditions.

Trowbridge Consulting states in its report that businesses commonly limit the amount of insurance purchased externally for reasons including the cost and availability of the insurance. SPI PowerNet believes that this is an efficient practice as it balances the cost of risk management against the expected value of the loss. SPI PowerNet has confirmed that it will not seek pass-through for events involving identified non-insured or self-insured risks unless the pass-through rules clearly cover the event.

As a general matter, the Commission is required to apply an incentive based form of regulation under the code. After careful examination of the merits of self-insurance on efficiency grounds, the Commission has determined that the following matters must be established prior to considering a self-insurance application:

- confirmation of the board resolution to self-insure;
- a report from an appropriately qualified insurance consultant that verifies the calculation of risks and corresponding insurance premiums;
- relevant self-insurance details that unequivocally set out the categories of risk the company has resolved to assume self-insurance for. This would need to clearly establish what the insured events and exclusions are so as to avoid any future debate as to whether or not an event was a self insured one and form the basis for actuarial assessment noted above.
- a regulated entity's resolution to self-insure would also be expected to explicitly acknowledge the assumed risks of self-insuring (ie in the event of future expenditure required as a result of an insurance event such costs would not be recoverable under the regulatory framework as the relevant premiums would have

already been compensated for within the operating and maintenance element of the allowed MAR and funded by users, eg if a 1 in a 100 year event occurs in year 1 then the business will need to have the financial ability to restore assets out of own resources).

Board resolution and corporate governance requirements are fundamental issues. Risk management strategy of an entity and approaches to events that could affect the overall risk profile of the entity are matters for Board consideration. This is important because it may require parent entity/shareholder support to self-insure and/or affect debt covenant requirements of lenders.

Therefore, the Commission will consider SPI PowerNet's claim for an allowance for self-insurance as per the above guidelines. Final approval will be dependant on all elements being satisfied such as a Board resolution regarding self-insurance.

2% contingency for unidentified risks

This amount covers events that cannot be anticipated and which are not covered by specific risk allowances or included in the pass-through rules. SPI PowerNet, in its reply to PB Associates' comments regarding its inability to confirm the reasonableness of the provision, stated that the consultant did not appear to have an objection to the contingency allowance in principle.

The 2 per cent provision amounts to approximately \$1 million pa. SPI PowerNet believes this is a reasonable figure given the ageing transmission network. Previously unanticipated events cited include additional corrosion abatement expenses that make the amount claimed appear modest in SPI PowerNet's opinion.

In view of the potential cost increases that may occur but which cannot be predicted, the Commission acknowledges that a contingency allowance per se is reasonable and considers a 2 per cent provision as proposed by SPI PowerNet to be appropriate in the circumstances. However, the Commission will review this matter at the next revenue reset to assess the continued reasonableness of the quantum of the provision.

Allocation of overheads

PB Associates stated in its report that overheads that cannot be directly allocated to either the contestable or non-contestable part of SPI PowerNet's business should preferably be allocated using a suitable driver, such as the proportion of the asset base utilised in those parts of the business. In reply, SPI PowerNet stated that it has followed clause 3.3 of the Commission's Information Requirements Guidelines and has adopted a non-causal basis for allocating indirect costs. SPI PowerNet stated further that the basis of this allocation is avoidable costs which was justified given the immaterial scale of costs involved (\$110,000). The Commission accepts the further information and explanation provided by SPI PowerNet.

Pass-through events

The Commission is currently considering its position regarding the comprehensive set of pass-through rules proposed by SPI PowerNet in its application. The Commission

will make a full assessment of the pass-through rules and their implications for efficiency and providing suitable incentives, and will subsequently determine the scope of the pass-through rules to be incorporated into its final revenue cap determination to be issued later this year.

5.7 Conclusion

Consequent with the review provided by PB Associates and the Commission's own analysis of matters, the Commission grants opex of \$373.94 million (nominal) over the regulatory period:

Table 5.3: SPI PowerNet opex: 1 Jan '03 to 31 Mar 08 (nominal \$m, excl GST)

	2003	2004	2005	2006	2007	2008
Total opex	19.4	67.78	69.31	70.87	72.47	74.10

6. Total revenue

The previous chapters discussed each of the major elements of the Commission's building block approach to setting SPI PowerNet's revenue cap. This chapter brings this work together, along with a discussion of depreciation and other related matters, to set out the Commission's decision on SPI PowerNet's revenue cap for the period 1 January 2003 to 31 March 2008.

6.1 Code requirement

As explained in Chapter 1, the code requires the Commission to set a revenue cap with an incentive mechanism for non-contestable transmission network services. The Commission's role as regulator of transmission revenue is limited to determining the MAR while SPI PowerNet will calculate the resulting network prices in accordance with Chapter 6, part C of the code.

The code outlines the general principles and objectives for the transmission revenue regulatory regime to be applied by the Commission. The code also grants the Commission the flexibility to use alternative, but consistent, methodologies. In fulfilling its role as regulator, the Commission's aim is to adopt a process which eliminates monopoly pricing, provides a fair return to network owners, and creates incentives for owners to pursue ongoing efficiency gains through cost reductions. The Commission will continue to develop the regulatory framework through its DRP.

6.2 The accrual building block approach

As explained in Chapter 1, the Commission's decision on SPI PowerNet's MAR relies on the accrual building block approach, while having regard to financial indicators. The basic building block approach calculates the MAR as the sum of the return on capital, the return of capital and opex (non-capital expenditure) and taxes.

The Commission notes that the possibility of pass-through items (for example an increase in third party insurance premiums as the result of a widened potential customer liability and higher service standard costs), have been incorporated to reflect the business environment that SPI PowerNet will face in the future. The revised building block formula thus becomes:

$$\begin{aligned} \text{MAR} &= \text{return on capital} + \text{return of capital} + \text{opex} + \text{tax} + \text{insurance} \\ &= (\text{WACC} * \text{WDV}) + \text{D} + \text{opex} + \text{tax} + \text{insurance} \end{aligned}$$

where: WACC = post-tax nominal weighted average cost of capital;
WDV = written down (depreciated) value of the asset base;
D = depreciation;
opex = operating and maintenance expenditure;
tax = expected business income tax payable; and
insurance = possible pass-through of reasonable additional third party insurance cost.

The expected tax and insurance terms have been discussed in Chapters 2 and 5 respectively.

6.3 SPI PowerNet's proposal

SPI PowerNet's previous revenue cap was determined under the Tariff Order by the Victorian Government for the period 1 July 1995 to 31 December 2002.

SPI PowerNet's application has been made on the basis that while the Commission will commence its regulation of SPI PowerNet's network from 1 January 2003, in accordance with the code, in order to align SPI PowerNet's reporting with the Singaporean financial year, the information has been provided to the Commission on the basis that the opening asset base will be set on 1 January 2003 to 31 March 2003.

SPI PowerNet proposes a revenue cap which includes:

- for the three month period 1 January 2003 to 31 March 2003 of \$75.0 million;
- for the financial year ending 31 March 2004, \$299.8 million; and
- for the financial years ending 31 March 2005 of \$307.2 million to 31 March 2008 of \$330.6 million.

6.4 Commission's assessment of building block components

The Commission's assessment of the various components of the revenue cap, in the context of the building block framework, is discussed below.

6.4.1 Asset value

In order to establish the appropriate return on the funds invested in SPI PowerNet, the Commission has modelled SPI PowerNet's asset base over the life of the regulatory period and estimated a weighted average cost of capital (WACC) based on the most recent financial information.

The basic methodology underlying the roll-forward of SPI PowerNet's asset base is that the closing value of the asset base from year to year is constructed by taking the opening value, converting it to a nominal figure by adding in an inflation adjustment, adding in any capital expenditure and subtracting disposals and depreciation for the year. The closing value for one year's asset base becomes the opening value for the following year's asset base. Under the post-tax nominal framework, this methodology is modified slightly to account for two regulatory issues, which will be discussed in the Depreciation section below.

Clause 6.2.3(d)(4)(iii) of the code states that the assets in existence and in service from 1 July 1999 are valued at the value determined by the jurisdictional regulator. In accordance with this provision, the Commission will roll forward the jurisdictional valuation of 1 July 1999 to include asset additions, deletions and depreciation and setting an opening asset base as at 1 January 2003 in accordance with SPI PowerNet's request.

The Commission engaged PB Associates to undertake a review of the SKM valuation, undertaken for the jurisdictional determination, and assess the reasonableness of SPI PowerNet's proposed asset roll forward schedule. PB Associates believed that

SPI PowerNet had adopted a reasonably rigorous and detailed process to develop their 1 January 2003 opening asset base. A modified version of the 1994 SKM valuation for the opening asset base was the basis for this. Therefore, based on the 1994 jurisdictional valuation and SPI PowerNet's proposed roll forward schedule, the Commission has set the opening value of SPI PowerNet's assets at \$1,815.56 million as at 1 January 2003.

In terms of modelling the movement in SPI PowerNet's asset value over the regulatory period, the Commission has, for the purposes of this decision, indexed this opening asset value by 2.26 per cent per annum, which is consistent with the inflationary expectations used in deriving the WACC.

6.4.2 Capital expenditure

SPI PowerNet has planned the introduction of new technology and integrated systems to replace existing, relatively old, discrete systems. After a brief review of the types of major capital expenditure projects proposed during the regulatory period, PB Associates concluded that projects planned are justified and appropriate

On the basis of PB Associates assessment, the Commission will include, in nominal terms, \$360.22 million of capital expenditure in the calculation of SPI PowerNet's revenue cap, including interest during construction.

6.4.3 Depreciation

Using a post-tax nominal framework, the Commission has made allowance for "economic depreciation" which adds together the (negative) straight line depreciation with the (positive) annual inflation effect on the asset base. SPI PowerNet noted that the straight line method of depreciation, is considered to provide the best approximation of the pattern of asset exhaustion.

This economic depreciation has been used to model the movements of asset values over the life of the regulatory period (table 6.1) and for determining the return of capital (table 6.2). Calculation of the applicable straight-line depreciation component has been based on the remaining life per asset class.

On the basis of this approach the Commission has calculated a straight-line depreciation allowance that trends from \$17.98 million for 1 January 2003 to 31 March 2003 to \$74.70 million, \$79.96 million, \$79.08 million, and \$81.68 million in each of the following full years.

6.4.4 Weighted average cost of capital

In determining SPI PowerNet's revenue cap, the Commission must have regard to SPI PowerNet's WACC. The WACC is a method commonly used for determining the return expected on an asset base.

While the WACC framework provides a well recognised theoretical model for establishing the cost of capital, there is less than full agreement on the precise magnitude of the various financial parameters that need to be applied. The Commission has given careful consideration to the value that should be assigned to

SPI PowerNet given the nature of its business and current financial circumstances. Accordingly, the parameter values used are those considered most appropriate.

The Commission has chosen to apply a post tax nominal return on equity of approximately 11.28 per cent, which equates to a post-tax nominal vanilla WACC of 8.42 per cent. In arriving at those figures, the Commission has adopted:

- a nominal risk free interest rate of 5.31 per cent, reflecting the short term average yield on ten year Commonwealth Government bonds;
- a real risk free rate of 2.98 per cent based on the short term average yield on five year capital indexed bonds;
- an expected inflation rate of 2.26 per cent derived from the difference between the two yields;
- a debt margin of 1.2 per cent above the nominal risk free interest rate leading to a nominal pre-tax cost of debt of 4.16 per cent.

The Commission has examined market evidence and accepted the advice of financial experts in determining a market risk premium of 6 per cent and a dividend imputation figure (gamma) of 0.5, although recent evidence suggests that a gamma closer towards 1 may be more appropriate.

The Commission has examined the risks faced by SPI PowerNet and the equity betas of similar businesses in arriving at an asset beta of between 0.30 and 0.50. This range is derived principally from the average equity beta for the infrastructure and utilities industry group listed on the Australian Stock Exchange. Using a gearing assumption of 60 per cent and a debt beta of 0.00, this converts to a possible range for the equity beta of between 0.75 and 1.25. Taking the midpoint of this range returns an equity beta for SPI PowerNet of just below 1.

The Commission's chosen post tax nominal return on equity of 11.28 per cent lies below SPI PowerNet's proposal of a nominal post tax return on equity of 11.99 per cent. This largely reflects the prevailing market conditions and SPI PowerNet's contention that it requires a higher rate of return to reflect the level of risk faced by its network from competing energy sources.

6.4.5 Asset base roll-forward

Based on the above components, the Commission has modelled SPI PowerNet's asset base over the life of the regulatory period (see Table 6.1). Note that, under the post-tax nominal framework adopted by the Commission, the return on capital building block has been calculated using the nominal vanilla WACC (8.42 per cent) consistent with the post-tax WACC determined from the cost of capital parameters.

Table 6.1 SPI PowerNet’s return on capital, 1 January 2003 to 31 March 2008 (\$ nominal million)

	Financial years ending 31 March					
	2003 ¹	2004	2005	2006	2007	2008
Opening asset base	1,815.56	1,823.04	1,855.91	1,880.63	1,892.31	1,921.13
Capital expenditure	15.30	68.58	63.79	54.31	75.95	82.29
Economic depreciation	7.83	35.71	39.08	42.62	47.13	51.34
Closing asset base	1,823.04	1,855.91	1,880.63	1,892.31	1,921.13	1,952.08
Return on capital	38.20	153.42	156.19	158.27	159.25	161.68

¹ This is data for a three-month period, 1 January 2003 to 31 March 2003.

6.4.6 Operating and maintenance expenses

SPI PowerNet argues that its business operations are extremely cost-efficient. PB Associates concurs with SPI PowerNet’s assertion, however, it notes that some external factors, such as the fact that SPI PowerNet’s network covers a comparatively small area, has affected favourably SPI PowerNet’s operating expenditure compared with other states. The Commission recognises opex of \$373.94 million over the regulatory period.

6.4.7 Estimated taxes payable

Based on the assumptions underlying the above building block components and taking into account the network’s tax depreciation profile, the Commission assesses SPI PowerNet as being in a positive tax paying position during the regulatory period.

The Commission’s assessment of taxes payable are based on the 60 per cent gearing level assumed in the WACC parameters. Further, the tax estimates relate only to the network’s regulated activities. The Commission’s estimated taxes payable trend from \$6.33 million for 1 January 2003 to 31 March 2003, \$15.27 million for the first full year of the regulatory period to \$19.00 million for 31 March 2008.

6.4.8 Total revenue and CPI-X smoothing

Based on the various elements of the building block approach, the Commission propose a smoothed revenue allowance that increased from \$68.61 for 1 January 2003 to 31 March 2003 to \$264.55 million, \$272.50 million, \$280.68 million, \$289.12 million and \$297.81 million in the subsequent full years of the regulatory period (Table 6.2). Those figures incorporate revenue smoothing based on an X smoothing factor 0.75 per cent. That is, the MAR will increase by CPI *plus* 0.75 per cent in each year of the regulatory period.

Table 6.2 SPI PowerNet's MAR to 2008 (\$ nominal million)

	Financial years ending 31 March					
	2003¹	2004	2005	2006	2007	2008
Return on capital	38.20	153.42	156.19	158.27	159.25	161.68
Return of capital	7.83	35.71	39.08	42.62	47.13	51.34
Operating expenses	19.41	67.78	69.31	70.87	72.47	74.10
Estimated taxes payable	6.33	15.27	16.18	17.08	17.94	19.00
Less value of franking credits	3.17	7.64	8.09	8.54	8.97	9.50
Unadjusted revenue	68.61	264.55	272.66	280.30	287.82	296.62
Smoothed MAR	68.61	264.55	272.50	280.68	289.12	297.81

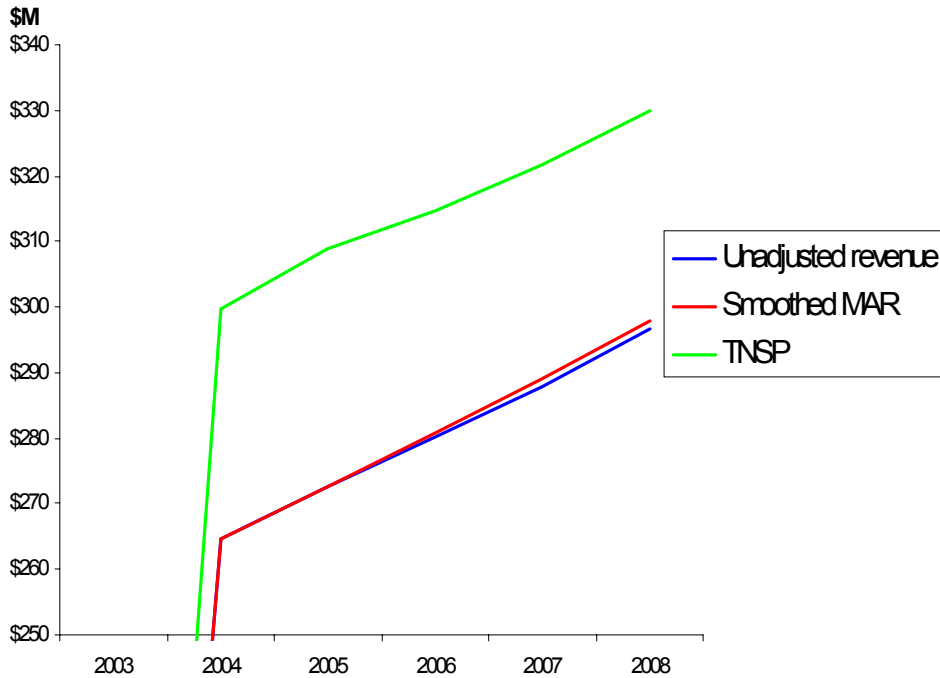
¹ This is data for a three-month period, 1 January 2003 to 31 March 2003.

In arriving at its draft decision, the Commission notes that its proposed revenue cap is around 10.76 per cent lower than SPI PowerNet's proposed revenue cap.

The difference between the Commission's final MAR and SPI PowerNet's figures is mainly the result of:

- a lower value for the opening asset base arising from lower values for the omitted and re-optimised assets, which were put back into the asset base;
- different inflationary assumptions in rolling forward the asset base; and
- different cost of capital parameters used in deriving at the post-tax nominal return on equity.

Figure 6.1: Comparison of MAR for SPI PowerNet, 1 January 2003 to 31 March 2008



6.5 Conclusion

On the basis of the Commission's forecast inflation, the Commission has determined a revenue cap for SPI PowerNet that increases from approximately \$68.61 million for 1 January 2003 to 31 March 2003 to \$297.81 million for 31 March 2008.

7. Service standards

7.1 Introduction

TNSPs provide a service and receive revenues not exceeding the MAR determined by the Commission. Such service differs from state-to-state, usually explained by differing asset structures, topography, etc.

The Commission intends to design and implement an incentive scheme to provide appropriate incentives to maintain or improve service quality for all TNSPs. This scheme will provide an incentive (or penalty) in addition to the MAR that a TNSP can earn.

The remainder of this chapter sets out:

- the code requirements for the inclusion of service standards in a revenue cap decision (section 7.2);
- the Commission's current review of transmission service standards (section 7.3);
- SPI PowerNet's application (section 7.4);
- VENCORP's application (section 7.5);
- views of interested parties (section 7.6); and
- the Commission's draft decision concerning service standards.

7.2 Code Requirements

The code requires that the Commission establish a framework for the regulation of transmission revenues.

Clause 6.2.4(c)(2) of the code states that when the Commission sets a revenue cap it must have regard to:

- the service standards referred to in the code applicable to the regulated transmission network; and
- any other standards imposed on the network by agreement with the relevant network users.

Clause 5.2.3(b) and schedule 5.1 of the code specify the quality of supply to be achieved by the networks.

Clause 5.2.3(b) states that a network must comply with the service standards specified either in schedule 5.1 or in a connection agreement. However if a connection agreement adversely affects a third network user, then it would be superseded by schedule 5.1.

Schedule 5.1 outlines the planning, design and operating criteria that a network must achieve. The design of a network has a clear impact on its performance over time.

Schedule 5.1.1 of the code states that:

“A Network Service Provider must:

- (1) fully describe the quantity and quality of network services which it agrees to provide to a person under a connection agreement in terms that apply to the connection point as well as to the transmission or distribution system as a whole; and
- (2) ensure that the quantity and quality of those network services are not less than could be provided to the relevant person if the national grid were planned, designed and operated in accordance with the criteria set out in this schedule S5.1.1 and recognising that levels of service will vary depending on location of the connection point in the network.

To the extent that this schedule 5.1 does not contain criteria that are relevant to the description of a particular network service, the Network Service Provider must describe the network service in terms which are fair and reasonable.”

The code defines ‘satisfactory operating state’ for the power system in Section 4.4.2. Essentially, the system is in a satisfactory operating state when the service standard indicators in Schedule 5.1 are met or exceeded.

7.3 Review of transmission service standards

The code defines a minimum service standard that TNSPs must provide. This is to ensure the entire NEM can operate in unison. However, these minimum (technical) standards do not give the TNSPs any incentive to provide better levels of service.

Currently the Commission is undertaking a review of transmission service standards. The purpose of the review is to develop a scheme that will provide incentives for TNSPs to consider the market impacts of their actions.

The Commission intends to design and implement a simple, practical and effective incentive scheme. Though the review has not yet been finalised, it has progressed sufficiently for the Commission to outline the likely outcomes. The incentive scheme will have the following characteristics.

- TNSPs will be held responsible for outcomes that they can control or are best placed to manage.
- simple measures of constraints, outage times and restoration times will be used as proxy for market outcomes resulting from TNSP performance;
- a TNSP’s benchmark will be developed using its own historical data. Where historical data is not available the Commission may;
- use national and international TNSP data to set a benchmark; and/or
- collect data and implement particular measures over time, which seems to be the preferred option;

- improvements upon the benchmark will result in an incentive in addition to the MAR;
- reductions below the benchmark will result in a penalty that will reduce the MAR;
- insubstantial improvements or reductions in service will not affect the MAR;
- the expected value of the extra revenue should be zero, ie. the scheme will be revenue neutral;
- maximum incentives or penalties will be small, yet sufficient to change behaviour. They are likely to be around 1 per cent of the total MAR;

As part of the review the Commission has engaged Sinclair Knight Merz (SKM) to make a recommendation to the Commission regarding the design and implementation of this incentive scheme. The Commission and SKM have consulted extensively in undertaking this review. In its progress report, SKM recommended that TNSPs should report on the following service quality indicators.

1. Circuit availability;
2. Number of events;
3. Average restoration time;
4. Minutes constrained (inter-regional);
5. Minutes constrained (intra-regional);

7.4 SPI PowerNet's application

SPI PowerNet recognises that the Commission's current review of transmission service standards is incomplete at the time of writing its application.

In its application SPI PowerNet included its current service standards. These arise from State regulation and a service agreement with VENCORP. The service performance arrangements have been in operation in Victoria since 1994.

SPI PowerNet's transmission license and the Victorian System Code require that it meet certain performance measures. These performance measures are:

- sustained forced outage rate for transmission lines;
- mean duration of forced outages;
- successful auto re-close of transient faults on transmission lines;
- sustained forced outage rate for transformers;
- mean duration of forced outages for transformers;
- availability of equipment forming part of the transmission network; and

- percentage of incorrect protection system responses.

These performance measures have been aimed at measuring equipment availability. SPI PowerNet states these measures are consistent with its primary function. These performance measures will be incorporated into the network agreement between SPI PowerNet and VENCORP.

Outside these performance benchmarks SPI PowerNet is subject to an incentive scheme depending on:

1. the availability of the transmission network; and
2. (reduction of) constraints.

SPI PowerNet and VENCORP have undertaken a review of this arrangement. Both will determine a revised scheme, which will involve estimating the cost of outages. SPI PowerNet will then pay this cost to VENCORP, which will be passed onto customers as a saving.

Commission's review of transmission service standards

SPI PowerNet proposes a framework for performance regulation under the Commission's revenue cap. It acknowledges that monitoring service standards is an integral part of the revenue cap.

SPI PowerNet believes that the service standards under the revenue cap should be consistent with its service agreement with VENCORP. SPI PowerNet believes its current performance measures and availability incentive scheme will produce the outcomes the Commission desires.

7.5 VENCORP's application

VENCORP also recognises the importance of linking the MAR with level of service. VENCORP's forecast costs assumes :

- its service standards under service agreements will be maintained ; and
- service standards of future augmentation will be consistent with existing standards.

VENCORP acknowledges the Commission's transmission service standards review and notes that increased service standards may increase the cost of operating its business. VENCORP believes there must be consistency between the service standards it provides under the revenue cap and the service standards that networks provide to VENCORP under service agreements.

VENCORP further notes its probabilistic approach to planning may impact the incentive scheme.

7.6 Views of interested parties

Citipower notes that the Commission's transmission service standards review is the only proposal that would encapsulate service levels at distribution connection points. Citipower believe there is scope to consider the introduction of a financial incentive to reward good performance of distribution connections

7.7 Commission's consideration

The Victorian regulatory framework is unique as the planning and operation functions of the transmission network are split between SPI PowerNet and VENCORP.

- SPI PowerNet owns, maintains and operates the transmission network. It is a company and its returns are paid to its shareholders.
- VENCORP is responsible for planning the network. It is a not-for-profit statutory organisation.

The service standards review is aimed at giving the incentive to TNSPs to operate the network in a fashion consistent with market outcomes. The Commission therefore believes that it is appropriate that SPI PowerNet be given this incentive.

7.7.1 Consultation on the service standards incentive scheme

The Commission proposes that SPI PowerNet will be provided with financial incentives to maintain transmission service levels. The Commission will outline the service standards it proposes to impose on SPI PowerNet in the course of its consultation process on this draft decision.

The Commission will seek written submissions on SKM's final report when it becomes available. At this stage, it is likely that SKM's final report will be made available in October 2002. As such, the Commission has outlined the details that SKM has made available about its recommendation. This will give SPI PowerNet and other interested parties the opportunity to provide a written submission on the incentive scheme in regard to this revenue cap.

The alternative was to seek submissions within the review of service standards. The timing of this alternative had the potential to delay the Commission's final revenue cap decision.

8 Financial indicators

8.1 Introduction

Clause 6.2.4(c) of the code provides that in setting a revenue cap, the Commission must have regard to the relevant financial indicators. Accordingly, the Commission has sought to examine the impact of its decision on SPI PowerNet's ongoing ability to manage its financial position. Financial indicator analysis provides a reasonableness check against the MAR determined under the building block methodology. This approach is consistent with that outlined in the Commission's draft *Regulatory Principles* and the *NSW and ACT* and *Powerlink* revenue cap decisions.

Financial indicator analysis is relevant in the context that investors, financiers and credit rating agencies examine financial performance indicators as part of their assessment of a firm's credit worthiness. Firms with lower ratings are less likely to gain access to funds in debt and equity markets. In this context, the Commission cautions against placing too much emphasis on financial indicators derived from the regulatory model, elements of which are not strictly comparable with the way in which traditional financial statements are derived.

8.2 Financial indicator analysis

To assess the implications of the total revenue assessed for SPI PowerNet, the Commission has used both qualitative and quantitative indicators. The former broadly described as the business profile and the latter as the financial profile. A firm with a strong business profile but a weak financial profile may achieve the same credit rating as a business with a weak business profile but strong financial profile.

Business profile

A range of issues impact on the assessment of a firm's business profile, including:

- the nature of the markets in which the firm operates;
- the competitiveness of the firm;
- the cost management systems of the firm; and
- the quality of key personnel of the firm.

It is not the Commission's function to comment on these factors directly. However, the Commission is in a position to comment on one important issue that impacts on the regulated entity's business profile, namely the nature of the regulatory framework itself. The Commission considers that the revenue protection afforded to regulated electricity transmission networks, particularly under a revenue cap methodology, ensures that those firms are able to maintain a relatively strong business profile.

Financial profile

Quantitative financial ratios also provide useful tools for analysing the impact of regulatory decisions on the firm.

As noted above, the process of calculating those ratios is complicated by differences between principles underlying the Commission's regulatory financial model and those used as the basis for construction of standard financial statements. However, the Commission considers that, for the purposes of high-level assessment, a reasonable basis for estimation is possible.

The Commission has used a typical range of financial ratios. The indicators used include measures of SPI PowerNet's:

- ability to cover operating costs;
- profitability;
- ability to service and repay debt;
- ability to finance new expenditure from operations; and
- gearing.

Credit rating

To generate an indicative overall credit rating from the business profile and financial ratios, the Commission has applied the classifications normally used by Standard and Poor's. Those ratings, and the way they are normally interpreted, are as follows.

Table 8.1: Standard and Poor's key indicators

Utility business profile	Funds flow interest				Internal financing			
	Cover (times)				Ratio (%)			
	AAA	AA	A	BBB	AAA	AA	A	BBB
Excellent	4.00	3.25	2.75	1.50	100	70	60	40
Above ave.	4.25	3.50	3.00	2.00	100	80	70	50
Average	5.00	4.00	3.25	2.50	100	100	90	55
Below ave.	X	4.25	3.50	3.00	X	100	100	75
Vulnerable	X	X	4.00	3.50	X	X	100+	90

AAA Highest rating - extremely strong capacity to meet financial commitments.

AA Very strong capacity to meet financial commitments.

A Strong capacity to meet financial commitments but somewhat susceptible to adverse economic conditions and changes in circumstances.

BBB Adequate capacity to meet financial commitments but more susceptible to adverse economic conditions however is not considered vulnerable.

Ratings in the BB, B, CCC, CC and C categories are regarded as having significant speculative business, financial and economic conditions.

8.2.1 Interested parties submissions

SPI PowerNet notes that although rating agencies including Standard and Poors and Moody's used both quantitative and qualitative factors to determine ratings, in the current context, the consistency issue is solely related to quantitative factors.

SPI PowerNet considers that assuming an average profile on qualitative factors, the credit rating that could be achieved by the benchmark business is determined with respect to the two most significant financial indicators used by rating agencies:

- the EBITD to interest cover ratio; and
- the gearing ratio.

SPI PowerNet notes that based on advice from Westpac's credit research group, an electricity transmission business exhibiting a 60 per cent gearing and with an EBDIT to interest cover ratio around 2.0 times would, most likely, be rated BBB+. SPI PowerNet considers that in view of this, the revenue cap would support an investment grade credit rating and is consistent with the input assumptions in the WACC calculation (BBB+).

8.3 Commission's assessment and conclusion

The Commission has calculated a set of financial indicators for SPI PowerNet for the regulatory period. The Commission's methodology takes the MAR determined in this decision and incorporate those values with their associated costs into the set of financial indicators shown in Table 8.2. In interpreting the results of the calculations, the Commission considers that SPI PowerNet has a business profile lying between excellent and above average given the likely stability of its earnings and lack of competitors for the services provided.

The Commission notes that SPI PowerNet has based its credit rating on advice from Westpac. Westpac recommended that an electricity transmission business exhibiting a 60 per cent gearing and with an EBDIT to interest cover ratio around 2.0 times would, most likely, be rated BBB+. However, the Commission notes that Standard & Poor's credit-rating agency has recommended a credit rating of A+ for SPI PowerNet.

Given this, the Commission's forecast shows greater optimism for SPI PowerNet's future viability under this revenue cap decision. The analysis suggests that, under the Commission's MAR, SPI PowerNet is likely to have an overall credit rating that trends from **A+ to A-** over the duration of the regulatory period.

The Commission has calculated the indicators, in table 8.2, associated with a 60 percent gearing as referred to in the cost of capital parameters in Chapter 2 of this decision. The actual level of gearing is a matter for the network's owners and the Commission notes that SPI PowerNet's actual gearing is more like 80 per cent. .

Table 8.2: SPI PowerNet financial indicators

Financial Indicators	2003/04	2004/05	2005/06	2006/07	2007/08
EBIT to revenues (%)	44.15	46.41	46.72	46.83	46.68
EBITD to revenues (%)	70.38	74.29	74.61	74.66	74.61
EBIT to funds employed (%)	8.55	6.70	6.81	6.93	7.06
EBIT to regulated assets (%)	8.55	6.70	6.81	6.93	7.06
Pre-tax interest cover (times)	2.19	1.72	1.74	1.78	1.81
Funds flow net interest cover (times)	2.45	2.77	2.81	2.85	2.92
Funds flow net debt pay back (years)	14.22	9.95	9.75	9.53	9.23
Gearing	60.00	60.00	60.00	60.00	60.00
Payout ratio	63.66	63.66	63.66	63.66	63.66

Note: Financial indicators formulae:

EBIT/funds employed	$EBIT / (debt + equity)$
Dividend payout ratio	$Dividends / NPAT$
Funds flow interest cover	$(NPAT + depreciation + interest + tax) / interest$
Funds flow net debt pay back	$(Debt - (investments + cash)) / (NPAT + depreciation)$
Pre-tax interest cover	$EBIT / interest$
Gearing	$Debt / (debt + equity)$

The Commission is satisfied that the likely credit rating delivered to SPI PowerNet will be above investment grade and will not adversely affect SPI PowerNet's ability to access capital markets. Based on its analysis, the Commission considers that the trend, when assessed against the background of SPI PowerNet's strong business profile, indicates that the final revenue stream set out above will not adversely affect the ongoing financial viability of the network.

9 VENCORP revenue cap

9.1 Introduction

The transmission arrangements in Victoria are unique in the NEM. As discussed earlier in this decision, SPI PowerNet owns and operates the transmission network and provides bulk transmission services to VENCORP under a network agreement. VENCORP is a not-for-profit organisation that owns no transmission assets itself. It provides shared network services to users and is responsible for planning and directing the augmentation of the shared network (which excludes the connection facilities utilised by generators and distribution bodies).

VENCORP's revenue requirement is essentially comprised of:

- payments to SPI PowerNet for bulk transmission services (prescribed services);
- payments to SPI PowerNet and other network providers for services relating to augmentations; and
- opex costs.

SPI PowerNet's MAR is regulated by the Commission, while payments for augmentations are set under regulatory provisions (if non-contestable) or by competitive processes (if contestable). Only the opex costs are fully within the direct control of VENCORP. This represents about 2 per cent of VENCORP's total costs.

The remainder of this chapter:

- sets out the requirements of the code (section 9.2);
- summarises the Commission's draft decision concerning the appropriate level of opex to be allowed in the present regulatory period as well as the information considered by the Commission in arriving at that conclusion. This includes:
 - VENCORP's opex proposal for the regulatory period (section 9.3);
 - a summary of the major findings of PB Associates' review (section 9.4);
 - submissions by interested parties (section 9.5);
 - sets out the Commission's considerations (section 9.6); and
 - summarises the Commission's conclusions (section 9.7).

9.2 Code requirement

The Commission's task in assessing VENCORP's opex is specified in the code. In particular, Part B of Chapter 6 of the code requires *inter alia* that:

- in setting the revenue cap, the Commission must have regard to the potential for efficiency gains in expected operating, maintenance and capital costs, taking into account expected demand growth and service standards; and

- the regulatory regime must seek to achieve an environment which fosters efficient use of existing infrastructure, efficient operating and maintenance practices and an efficient level of investment.

However, it should be noted that clause 9.8.4(a)(2) of the code states that in the case of any inconsistency between the Victorian electricity transmission regulatory arrangements and the code, the Victorian arrangements will prevail. Those arrangements incorporate the provisions of the Tariff Order. VENCorp has proposed in its application that the key elements of the Tariff Order regime be preserved in the Commission's revenue cap determination. Those key elements are discussed further in section 9.3.

To undertake its task, the Commission needs to make informed decisions on the adequacy, efficiency and appropriateness of the opex planned by VENCorp to meet its present and future service requirements. To this end the Commission engaged PB Associates to review VENCorp's opex program. The results of PB Associates' review are summarised in section 9.4.

9.3 VENCorp's application

Forecast revenue requirement

VENCorp broadly categorises its revenue requirement into 3 types:

- net opex, eg. staff, administration, consultants;
- committed and planned augmentation charges; and
- SPI PowerNet charges for prescribed services.

VENCorp considers that the transmission arrangements that apply to its ownership, governance and organisation are unique. It is the only TNSP in Australia constituted as a not-for-profit organisation. It owns no transmission assets and has no commercial interest in doing so. Further, VENCorp's corporate objectives require it to be commercially neutral and cost effective in delivering its services. VENCorp's Board is responsible for ensuring that budgeted and actual cost performance are consistent with best practice. These arrangements, in VENCorp's opinion, lead to efficient costs and efficient investment decisions.

Table 9.1 Revenue requirement 2003 to 2007/08 (exc.GST)

Overall Revenue Requirement	Forecast Financials (in 2002 \$M) for year ending 30 June					
	2003	2004	2005	2006	2007	2008
Net Operational Expenditure	2.7	5.4	5.5	5.9	5.9	6.1
Committed Annual Augmentation	5.9	10.9	10.6	10.2	9.7	9.5
Planned Annual Augmentation charges	0.2	3.6	7.5	12.2	15.6	17.2
Total VENCORP forecast expenditure	8.8	19.9	23.6	28.3	31.2	32.8
SPI PowerNet Prescribed Service charges	122.1	138.4	237.5	234.8	232.9	231.7
Total costs to be recovered through TUoS by VENCORP	130.9	258.3	261.1	263.1	264.1	264.4
Energy (GWh) ²	24,395	50,062	50,995	52,003	52,835	53,628
Victorian TUOS charges (\$/MWh)	5.4	5.2	5.1	5.1	5.0	4.9

Proposed revenue cap arrangements

VENCORP's MAR is currently determined by the Commission under the Victorian Tariff Order. As noted previously, clause 9.8.4(a)(2) of the code provides that where there is an inconsistency between the Tariff Order (part of the Victorian regulatory arrangements) and the code, the Tariff Order will prevail.

In VENCORP's opinion, preserving the key features of the Victorian regulatory regime would be consistent with clause 9.8.4(a)(2) of the code, and would clarify the regulatory arrangements that will apply from 1 January 2003. Those key features currently provide that VENCORP's revenue is to be determined on a full cost recovery but no operating surplus basis, and is to be adjusted annually to account for differences between actual and forecast costs.

VENCORP has therefore proposed that its revenue cap contains mechanisms to ensure:

- VENCORP is able to adjust, subject to approval by the Commission, its TUOS charges once each year to adjust for any over-recovery or under-recovery of revenues from previous years, which may arise for any reason including variations between actual operating forecasts and forecasts of operating costs used by the Commission to set VENCORP's revenue cap; and

- VENCORP is able to adjust its TUOS charges once each year to reflect and recover the costs of new network augmentations in the year in which these assets enter service, regardless of whether or not the actual costs of these augmentations have been included in the forecast of costs used by the Commission to set VENCORP's revenue cap, subject to the requirement that any new augmentation is demonstrated to be economically justified through the application of the regulatory test.

VENCORP believes that there are practical problems in applying Part B, Chapter 6 of the code to its revenue determination, in particular the building block approach to setting maximum revenue and the CPI-X form of regulation. It states that it is inappropriate to VENCORP's circumstances as its capital structure and cost forecasts make no provisions for unforeseen changes. Hence, the need for the proposed pass-through mechanism.

*Net opex***Table 9.2 Forecast net opex 2003 to 2007/08 (exc. GST)**

Planned Cost	Forecast Financials (in 2002 \$'000) for Year ending 30 June					
	2003	2004	2005	2006	2007	2008
Labour	2,235	2,357	2,436	2,636	2,722	2,814
Contracted Services	219	204	205	209	211	212
Computing and Communications	506	467	469	479	480	486
Consultancies and Contractors	573	534	546	559	570	582
Occupancy	168	168	168	168	168	168
Vehicles and travel	161	164	166	174	176	179
Administrative	44	44	44	44	44	44
Service allocations	1,265	1,318	1,320	1,397	1,385	1,442
Depreciation	258	277	315	378	329	2825
Operational Expenditure	5,429	5,533	5,668	6,045	6,087	6,209
Consulting and other income	(120)	(120)	(120)	(120)	(120)	(120)
Interest income	-	(100)	(100)	(100)	(100)	(100)
Bank fees and financial expenses	73	72	70	68	67	65
Non TUOS Revenues	(47)	(148)	(150)	(152)	(153)	(154)
Net Operational Expenditure	5,382	5,385	5,518	5,893	5,934	6,055

VENCorp has proposed that it's net opex be subject to an aggregate cap of \$31.5 million over the regulatory period. VENCorp proposes to apply to the Commission for a pass through of additional costs if opex is forecast to exceed the aggregate cap.

VENCorp expects to undertake additional work during the regulatory period which will lead to a modest increase in opex, including:

- increasing its in-house technical and analytical capability to plan and facilitate an expected increase in the number of augmentations;
- technical analysis of generator connection applications is expected to increase;
- technical and commercial analysis of entrepreneurial interconnectors;
- continuing impact of code changes on VENCORP's resources;
- VENCORP's statutory electricity functions will commence bearing some of the communication department's costs due to new responsibilities. Risk management and compliance costs will also be partly allocated to statutory electricity bodies; and
- the requirement for VENCORP to obtain local government planning and building permits for significant augmentations.

Network augmentation expenditure

VENCORP utilises probabilistic planning and investment criteria consistent with the Commission's regulatory test, with most projects justified on the basis of expected economic net benefits. This is achieved by considering the major costs and benefits of augmenting the network over a range of scenarios tested against a range of alternatives. VENCORP's planning is aimed at ensuring the maintenance of power system security following the loss of the most critical transmission element at times of peak demand.

VENCORP undertook a major review of its planning and investment criteria in 2001 as these are a key determinant of service standards. The review concluded that a probabilistic approach should continue to be used.

Load forecasts

The National Institute of Economic and Industry Research has produced load forecasts for a variety of scenarios to 2015/16 which include annual energy consumption and half hour Maximum Demand for summer and winter. The forecasts enable VENCORP to assess the adequacy of future electricity transmission.

Committed projects

There are two categories of projects:

- long-term contracts under which payments are made to SPI PowerNet (non-prescribed services) and other TNSPs for transmission services; and
- contracts that will be rolled into SPI PowerNet's regulated asset base from 1 January 2003 – payments will be included in SPI PowerNet's prescribed services charges to VENCORP.

Planned augmentations

Load growth, new loads or generators, and service standard requirements are among the factors driving the need for new augmentations. VENCORP has provided four

different scenarios and applicable annual charges in its application. As scenarios 2 and 4 have a higher level of uncertainty, VENCORP has not included those scenarios in its estimated augmentation costs over the regulatory period.

Service standards

VENCORP's contracts with TNSPs for the provision of network services define service standards and usually include performance incentives. VENCORP recognises the need to link regulated revenues to defined service standards. However, it states that any changes to existing service standards by the Commission may cause a change in the cost to VENCORP of procuring network services.

Service standards are more fully discussed in Chapter 7 of this draft decision.

9.4 Consultant's report

PB Associates was engaged by the Commission to undertake a review which analyses and comments on matters in relation to the contribution of opex to VENCORP's delivery of transmission services. The review also examined VENCORP's committed and planned augmentation charges.

The main findings of PB Associates' report are:

- VENCORP's costs, except for its relatively small opex cost, are either contestable or subject to regulation. Cost overruns cannot be absorbed internally and it is not clear what purpose is served by using an incentive based regulatory model;
- the planning and forecasting methodologies used should ensure that only necessary expenditure is committed. The approach proposed by VENCORP should deliver acceptable regulatory outcomes;
- the \$0.7 million increase in opex over the regulatory period is considered appropriate;
- the mechanism for allocating costs is considered appropriate;
- PB Associates is satisfied that the VENCORP planning process undertaken is a reasonable and robust process and ensures that only necessary and efficient expenditure is included in the forecast;
- PB Associates considers that the process employed in the development and application of load growth forecasts is reasonable and in accordance with industry best practice. The use of short-term ratings, dynamic ratings, network operation and control have been considered where appropriate;

Net opex

In view of VENCORP's additional responsibilities over the regulatory period due to augmentations, new generator connection applications, code changes and other factors the \$0.7 million increase in opex over the period is considered appropriate. Net opex has been significantly influenced by a decrease in interest income arising from inter-regional settlement residues.

PB Associates considers the cost movements from the historical levels to those proposed in the regulatory period to be appropriate.

Network augmentation planning and expenditure

VENCorp is proposing a small number of planned projects above those projects already committed. Consequently, expenditure requirements will be sensitive to individual project outcomes. Under the regulatory test, the timing and costs of these projects is beyond the control of VENCorp.

PB Associates agrees that VENCorp's augmentation process and criteria are consistent with the regulatory test. VENCorp's planned projects as listed in scenario 1, section 7 of its application, were examined as part of PB Associates' review. VENCorp has based its application on scenario 1 and PB Associates considers that scenario to be appropriate. PB Associates reviewed two projects in greater detail:

4th 500 kV line project and associated 1000MVA transformer at Cranbourne or Rowville

This project has undergone the regulatory test and public consultation, receiving general support. There are 2 options, both of which satisfy the regulatory test. The Cranbourne option has been assumed in VENCorp's application. The project is an example of how the probabilistic planning approach can produce options with large variances in capital cost but small variances in NPV.

4th Dederang 330/220 kV transformer and Mt Beauty 220 kV switchgear replacement

This project will be required if SNI becomes operational. There has been some deferment of the project from a strict N-1 deterministic approach. The installation of the new transformer and associated substation works option would appear reasonable.

Upgrade Rowville – Springvale – Heatherton 220 kV lines

This project may be deferred if the Cranbourne terminal station is constructed and loading is transferred to this new station from Springvale and Heatherton.

Upgrade Ringwood 220 kV supply

Some deferment may be possible. It is not clear what deferment may be economic and what costs, if any, may be incurred in mitigating the risk of potential overloads.

Metropolitan 1000 MVA 500/220 kV transformer

Some deferment of this project is possible. The South Morang option is favoured which should maximise the NPV. The installation of the new transformer and associated substation works option would appear reasonable.

Summary

PB Associates concluded that it was difficult to see any systematic attempt to inflate costs associated with the projects. The budgetary estimates appear reasonable for the scope of the works, noting the large variance expected in the estimates.

The main issues relating to the need and timing of the planned projects are:

- 4th 500 kV line and associated substation works – VENCORP has assumed the Cranbourne option (\$36 million) in its application, although the Rowville option (\$24 million) resulted in higher benefits for most credible scenarios. The net benefits for both options are reasonably close. However, when a provision for switching is included in the Rowville option, the Cranbourne option may be more economic.
- Rowville – Springvale – Heatherton 220 kV line upgrade - may be deferred if the Cranbourne terminal station is constructed and loading is transferred to this new station from Springvale and Heatherton.
- Ringwood 220 kV supply – some deferment may be possible from the estimated timing in VENCORP’s application.

Network optimisation

PB Associates states that it is not clear to what extent VENCORP would face optimisation risk for non-contestable augmentations provided by SPI PowerNet. VENCORP would take the planning risk but it is not clear who would take the technology risk that may lead to a lowering of capital value in the future.

Regarding contestable augmentations, VENCORP would face the risk that the asset may no longer be required in the future even though it is committed to ongoing payments for the service. PB Associates concludes that VENCORP could presumably apply accelerated depreciation and pay off contracts earlier in accordance with the draft Regulatory Principles.

VENCORP state that no optimisation should be applied as:

- it is a not-for-profit network planner;
- it has no commercial interest in developing or owning transmission assets; and
- its governance and transparent planning process ensure that only cost effective investments are made.

However, this approach does not necessarily protect VENCORP from the introduction of new technology during the term of its contracts with network service providers. VENCORP has assumed in its application that no optimisation would be applied to committed augmentation projects.

VENCORP follows a comprehensive process to mitigate optimisation risks:

- an Annual Planning Statement is produced;
- each project is assessed under the regulatory test, technical reports are produced, public consultation conducted and Board approval obtained;
- approval is obtained from the ESC for non-contestable work;

- an invitation to tender for contestable work is issued to network service providers; and
- the Board approves tenders for contestable projects.

Efficiency opportunities

VENCorp has not identified opex cost reduction opportunities. However, its industry related Board should provide an incentive for cost minimisation. There should also be incentives for efficiency and effectiveness when considering network augmentations as projects must pass the regulatory test.

9.5 Submissions by interested parties

Forecast revenue requirement

While noting PB Associates' conclusion that VENCorp's opex is lower than that of Powerlink and Transgrid's, the EUAA wants VENCorp's costs benchmarked more thoroughly. EUAA recommends that the Commission seek additional transparency in relation to its incentive structure.

Proposed revenue cap arrangements

Powerlink and TransGrid argue that accepting some of VENCorp's proposed arrangements may lead to significant inconsistencies between it and the other TNSPs, unless efforts are made to treat all TNSPs equally.

Powerlink states that VENCorp's proposed annual pass-through of augmentation costs allows it to pass on a higher than estimated cost of capital to customers, something not available to other TNSPs. Powerlink argues that all TNSPs should be treated the same, that is, fix the cost of capital upfront for all TNSPs, or allow pass throughs for changes in the cost of capital via an indexation formula.

Powerlink also states that, for long-term contracts covering a number of regulatory periods, the owner's cost of capital is guaranteed for the entire contract period whereas other TNSPs have their cost of capital reset every five years. Powerlink argues that equity requires either allowing all TNSPs to index their revenues to cover interest rate movements over the life of the assets, or requiring VENCorp to index revenues to reflect interest rate movements and resetting the WACC every five years in line with other TNSPs.

TransGrid supports the annual reset of opex and augmentation expenditure as proposed by VENCorp, subject to Commission approval of the reset.

1. TransGrid acknowledges that VENCorp is not affected by commercial incentives due to its not-for-profit nature. It agrees that the CPI-X regime cannot be applied to VENCorp's operations. TransGrid also believes that it is not possible to link commercial incentives with service standards in VENCorp's case;
2. TransGrid considers that much of the augmentation work is non-contestable and that SPI PowerNet has a competitive advantage in respect of the existing system. TransGrid also believes that competition in relation to greenfield transmission

projects may be less than robust as there are only a small number of bidders in some instances; and

- TransGrid believes that VENCORP's customers may be subject to higher rates of depreciation than allowed for in the Commission's draft *Regulatory Principles*, due to the term of the contract. TransGrid states that the Commission should closely control the term of these contracts; and

Network optimisation

Powerlink and TransGrid argue that optimisation risk should apply equally to all TNSPs, including VENCORP. They believe that there are no material differences between VENCORP and the other TNSPs in terms of Board review and application of the regulatory test. Therefore, Powerlink argues that optimisation should apply equally to all TNSPs with no opportunity to pass through to customers, or eliminate the risk for all TNSPs.

Service standards

TransGrid states that it is not clear, under the proposed Performance Incentive Scheme (part of the Commission's Service Standards Review), how such performance drivers can apply to a not-for-profit body like VENCORP. It may not be clear if poor performance is due to poor planning and augmentation timing or poor maintenance practices. Under the Victorian arrangements, VENCORP is not responsible for maintaining the network.

9.6 Commission's considerations

Forecast revenue requirement

Most of VENCORP's costs are regulated or set by competitive processes, with opex being its only directly controllable cost. The Commission notes PB Associates' finding that the \$0.7m increase in opex over the regulatory period is considered appropriate. The Commission also notes that PB Associates is satisfied that VENCORP's planning processes are reasonable and robust and ensure that only necessary and efficient expenditure is included in forecasts. The Commission concludes from these findings and its own analysis that the proposed opex and augmentation expenditure is appropriate.

Proposed revenue cap arrangements

VENCORP has proposed revenue cap arrangements in its application that differ from other TNSPs currently regulated by the Commission. In essence, it has submitted arrangements that preserve the key elements of the Victorian Tariff Order regime under which it is presently regulated. VENCORP points to clause 9.8.4 of the code as authorising these arrangements which recognise the not-for-profit nature of the organisation and allow for annual adjustments of its TUoS charges for under and over-recoveries of charges from the previous year, and for new augmentations when commissioned.

VENCorp proposes to maintain these features under the coming revenue cap decision, such annual adjustments being subject to approval by the Commission in the case of under or over-recoveries, or subject to the regulatory test in the case of new augmentations. The Victorian Department of Natural Resources and Environment is working with VENCorp to develop code change proposals to clarify the regulatory arrangements applying to VENCorp from 1 January 2003.

Powerlink has commented that it wants equitable treatment for all TNSPs. It should be noted, however, that the code contains derogations in relation to the economic regulation of VENCorp. Clause 9.8.4 of the code operates to apply the Victorian transmission regulatory arrangements to the regulation of VENCorp's transmission revenues. These arrangements, as defined in clause 9.8.3(b), include the provisions of the Tariff Order. Further, in the event of an inconsistency between Parts B and C of chapter 6 of the code and the Victorian transmission regulatory arrangements, the latter arrangements will prevail. The Commission notes that the Tariff Order currently provides for the annual adjustment of TUoS charges as submitted by VENCorp in its revenue cap application.

As a result of the interaction of clauses 9.8.3 and 9.8.4 and Part B of the code, VENCorp has submitted particular revenue cap arrangements in its application which it believes will be more appropriate to its situation. The Commission notes PB Associates' conclusion that it is not clear what purpose is served by using the CPI-X model for a not-for-profit organisation such as VENCorp. Transgrid concurs with that finding.

The Commission understands that code change proposals will be submitted to it for authorisation shortly, at which time the details and implications of such changes will be fully assessed. In the meantime, the Commission has incorporated the broad revenue cap arrangements proposed by VENCorp into its draft revenue decision, pending its final decision to be issued later this year.

Net opex

VENCorp's net opex is small, capped, and increases modestly over the regulatory period. A significant factor in the quantum of its net opex is the reduction of interest income from previous years. VENCorp has provided the Commission with historical costs and forecasts for the regulatory period, and explanations for any increases.

Network augmentation expenditure

The Commission notes that PB Associates found VENCorp's planning processes and expenditure to be appropriate, with planned augmentations satisfying the regulatory test (unless such projects are not yet at the detailed planning stage, in which case there is further detailed analysis still to be performed). PB Associates also found the load growth forecasting process to be reasonable and in accordance with industry best practice. Additionally, VENCorp's budgetary capital cost estimates used for planning projects appeared reasonable for the scope of works. In its review, PB Associates examined the implementation of certain planning decisions and found the process followed was appropriate in the projects reviewed. The Commission is therefore, satisfied that VENCorp's forecast augmentation expenditure is appropriate and reasonable.

Network optimisation

VENCorp believes that it has a comprehensive risk mitigation process in place in respect of potential optimisation, bearing in mind that it does not own transmission assets itself. VENCorp further believes that optimisation should not apply as it is a not-for-profit body and projects must pass the regulatory test and review by its Board. PB Associates agrees the risk of asset stranding is low, especially in the short term.

The Commission acknowledges Powerlink's concerns that optimisation risk should apply equally to all TNSPs. However, it is recognised that VENCorp is not the owner of the assets at risk. Rather, the risk it bears is in relation to any commitment to make payments under contractual agreements to asset owners where the asset has been optimised by the Commission out of that asset owner's regulatory asset base. The Commission is presently considering how optimisation risk should apply to VENCorp and expects to reach a conclusion by the time its final decision is issued.

9.7 Total revenue

As the result of the analysis provided by PB Associates and the Commission's considerations, the Commission accepts the information provided by VENCorp with the exception of the amounts claimed in respect of SPI PowerNet's Prescribed Services charges.

The charges to VENCorp over the regulatory period have been calculated as follows:

- SPI PowerNet's nominal dollar amounts, as calculated by the Commission, have been multiplied by 83% (VENCorp had proposed a figure of 86% as an estimate of how much of SPI PowerNet's total charges relate to the shared network. However, recent figures have averaged about 82.8% and there has been little change in that area for these purposes);
- An annual availability rebate of \$6m payable by SPI PowerNet in defined circumstances was then deducted to arrive at the final charges (it was also necessary to adjust for the difference in financial years between the two organisations).

SPI PowerNet's prescribed services charges are factored into VENCorp's revenue requirement. The Commission grants a revenue requirement over the regulatory period as follows:

Table 9.3 VENCorp revenue from 2003 to 2007/08 (in 2002 \$m, excluding GST)

	2003 (6 mths)	2003/04	2004/05	2005/06	2006/07	2007/08
Total revenue	106.4	205.6	207.1	208.6	210.2	211.8

In its recent 2002/03 revenue and pricing submission made under the Victorian Tariff Order, VENCorp proposed to the Commission that the six month period from 1 January 2003 to 30 June 2003 would effectively be a transition period to the Commission's revenue cap decision made under the code. The Commission agreed to this approach as it regulates VENCorp's revenue under both regimes using a common methodology.

In summary, the revenue path detailed above encompasses a transition from the Tariff Order to regulation under the code, but does not incorporate an X factor, either as an efficiency measure or as a smoothing factor. The Commission recognises that a CPI-X regime is not appropriate for a not-for-profit body such as VENCORP.

Proposed revenue cap arrangements

The Victorian Department of Natural Resources and Environment is working with VENCORP to develop code change proposals. The aim of these code changes is to clarify and formalise the regulatory arrangements applying to VENCORP from 1 January 2003.

Therefore, pending the finalisation of these code changes, the Commission accepts the following proposed revenue cap arrangements as detailed in VENCORP's application:

- VENCORP is able to adjust, subject to approval by the Commission, its TUoS charges once each year to adjust for any over-recovery or under-recovery of revenues from previous years, which may arise for any reason including variations between actual operating forecasts and forecasts of operating costs used by the Commission to set VENCORP's revenue cap; and
- VENCORP is able to adjust its TUoS charges once each year to reflect and recover the costs of new network augmentations in the year in which these assets enter service, regardless of whether or not the actual costs of these augmentations have been included in the forecast of costs used by the Commission to set VENCORP's revenue cap, subject to the requirement that any new augmentation is demonstrated to be economically justified through the application of the regulatory test.

However, the Commission may revise its assessment once the code changes are submitted for authorisation and the detail and consequences of those changes are fully considered.

Attachment A – Submissions in response to application

In response to the Commission's call for submissions on SPI PowerNet's and VENCORP's application and the consultants reports, submission were received from:

- Energy Users Association of Australia
- SPI PowerNet
- VENCORP
- Energy Users Coalition of Victoria
- Energy Action Group
- Powerlink