

6 CAPITAL EXPENDITURE

6.1 Introduction

This chapter sets out Transend's forecast capital expenditure for each year (or part year) of the regulatory period starting on 1 January 2004. The chapter distinguishes between three types of capital expenditure, and examines each in turn:

- **Development Capital Expenditure**

This capital expenditure is associated with augmentation of the existing network to meet security criteria, load growth, new customer connection requirements, and new generation and Code compliance requirements.

- **Renewal Capital Expenditure**

This capital expenditure involves the replacement, enhancement and refurbishment of existing transmission assets.

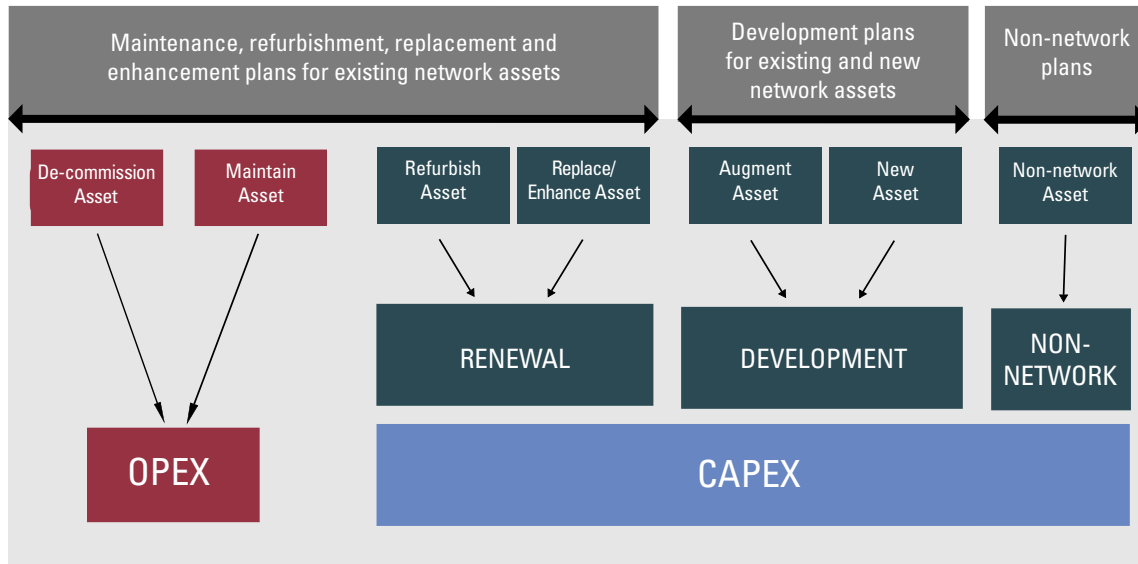
- **Non-network Capital Expenditure**

This capital expenditure relates to non-network assets, such as information technology systems that are required to support the transmission business.

In general terms, Transend's approach to forecasting capital expenditure involves six steps:

1. Fulfil the requirements of the Tasmanian Electricity Code (TEC) and National Electricity Code (NEC).
2. Identify the relevant drivers for each category of capital expenditure.
3. Develop forecasts of capital expenditure requirements on the basis of a detailed assessment of the relevant drivers over the regulatory period.
4. Critically examine the expenditure plans to test their robustness, including, where necessary, the use of independent consultants to review the plans.
5. Ensure, as far as possible, that an efficient balance between maintenance and capital expenditure is attained.
6. Review all capital expenditure and maintenance plans to maximise synergies and efficiencies between them.

Transend has developed a Transmission System Management Plan (TSMP) that integrates the company's network maintenance and capital expenditure plans. The relationship between the TSMP, the various network expenditure activities and their categorisation between operating and capital expenditure is shown in Figure 6.1:

Figure 6.1: Transmission System Management Plan

6.2 Development capital expenditure — requirements

6.2.1 Key drivers

Transend's requirements for development capital expenditure are principally driven by five elements:

- load forecasts
- new customer connections
- new generation projects
- system security criteria
- Code compliance.

In addition to these five elements, the TEC established two processes to facilitate coordinated planning for existing and future Code participants:

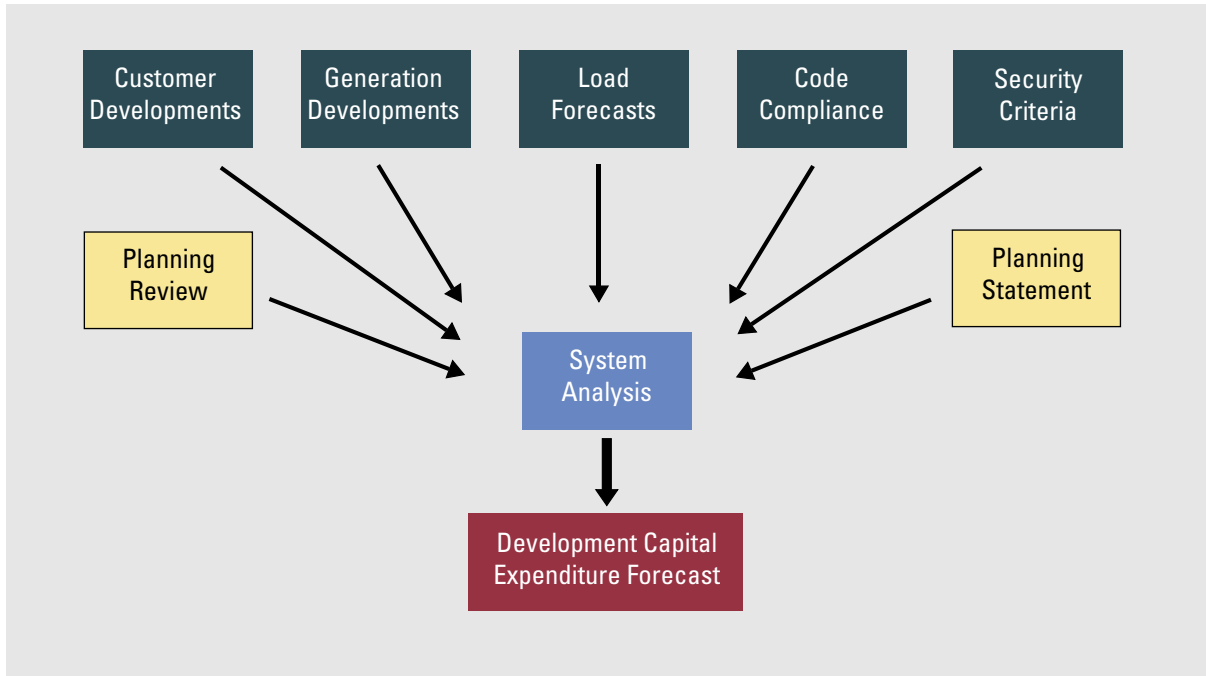
Process 1

Annual planning review between Transend and Aurora, primarily to identify connection-point issues and agree strategies to deal with these issues.

Process 2

Annual *Planning Statement* produced by the System Controller, which contains information about opportunities in the Tasmanian electricity supply industry; and a forward-looking overview of the electricity supply system.

Transend uses this information to assess the required system augmentations to meet the needs of existing and future customers. This is illustrated in Figure 6.2:

Figure 6.2: Key drivers: development capital expenditure forecast January 2004 to 2008–09

6.2.2 Load, customer connection and generation forecasts

NEM entry and the landing of reticulated gas constitute significant changes to the Tasmanian business environment. These major infrastructure projects will bring substantial changes to the Tasmanian economy and offer new choices and opportunities for users of the transmission network. This makes forecasting load growth and load flows in the forthcoming regulatory period particularly problematic.

The changed business environment will also have implications for forecasting new generation projects. Normally, the potential for new generation might be driven by future load and system maximum demand. However, new generation may also be driven from supply-side changes arising from the availability of new fuel sources (such as gas) or new technologies (such as wind). Reticulated gas will provide prospective generators with an important alternative fuel source, whilst NEM entry offers new market opportunities.

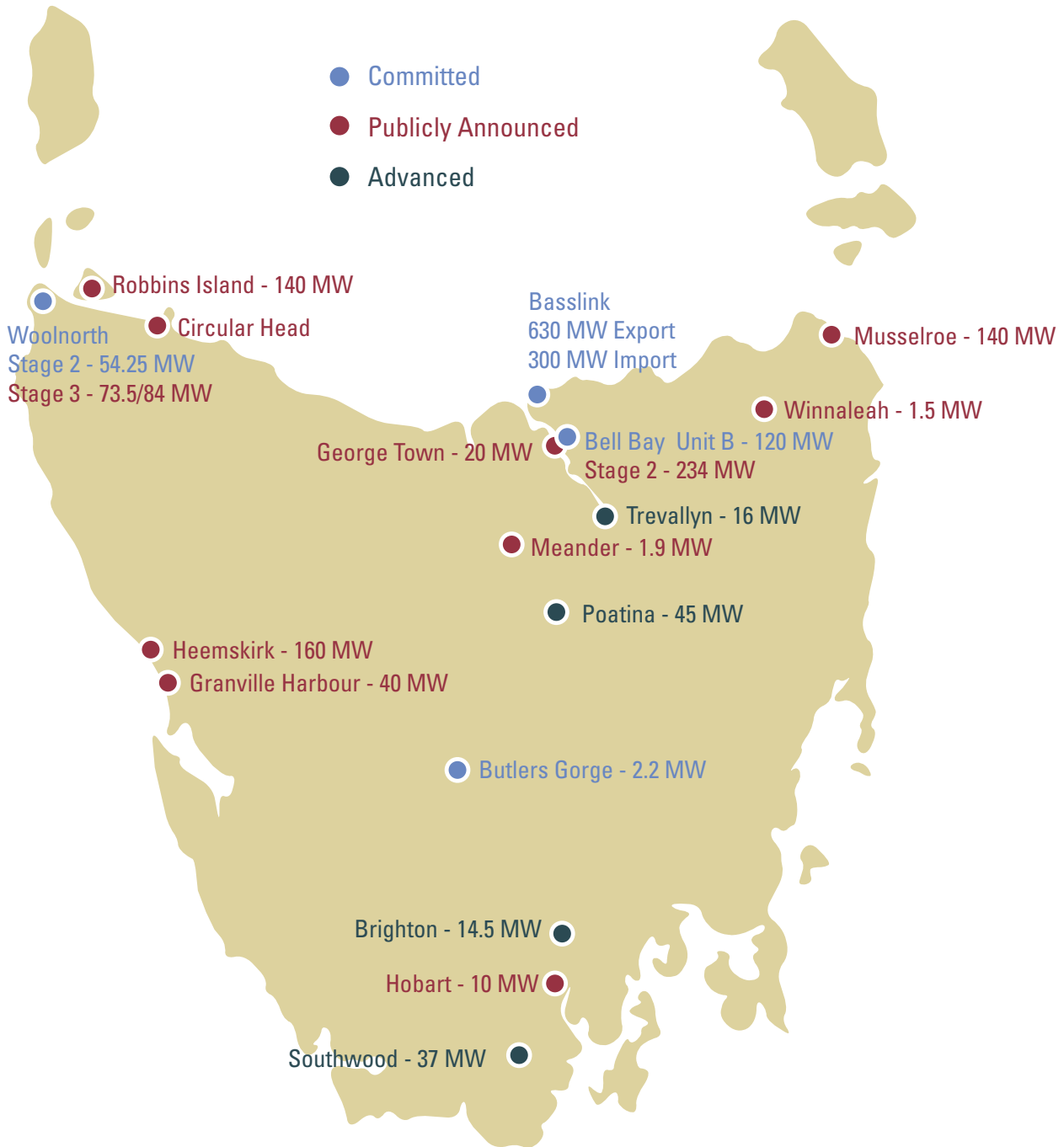
The ultimate impact of new fuel sources and technologies on future generation developments cannot at this stage be known for certain. For example, the financial viability of wind generation projects will be affected by the future of the mandatory renewable energy targets (MRET) scheme and market opportunities within the NEM. These drivers are themselves the subject of some conjecture.

The System Controller's *2002 Planning Statement* provides some guidance on the generation projects that are now being contemplated. The System Controller categorises generation projects into 'committed', 'advanced' and 'publicly announced'. Figure 6.3 and Table 6.1 show a very substantial number of generation projects that may proceed.

Compared to new generation, the location and increments of system load growth are generally more predictable. Transend works with Aurora to meet their connection needs in response to load growth, security requirements and new customer connections.

Major industrial load growth is typified by individual customer increments of five to 30 MW, compared to total general load growth of 20 MW a year. Therefore, load growth from major industrial customers can have a material impact on the development of the transmission system.

Figure 6.3: Generation projects in Tasmania



Source: System Controller 2002 Planning Statement (amended to include sites rather than proponent names).

Table 6.1: Generation projects by proponent, fuel type, capacity and status

Project	Proponent	Fuel	Capacity MW	Status
Basslink	Basslink Pty Ltd	N/A	300 import ¹ 630 export	Committed
Bell Bay Unit B	Bell Bay Power Pty Ltd	Natural gas	No capacity change	Committed
Woolnorth Stage 2, Bluff Point	Hydro Tasmania	Wind	54.25	Committed
Butlers Gorge	Hydro Tasmania	Water	2.2	Committed
Southwood	Forestry Tasmania	Wood waste	37	Advanced
Brighton	Total Energy Services Tasmania Pty Ltd	Municipal and industrial waste and natural gas	14.5	Advanced
Gordon	Hydro Tasmania	Water	No capacity change	Advanced
Poatina	Hydro Tasmania	Water	45	Advanced
Trevallyn	Hydro Tasmania	Water	16	Advanced
Bell Bay Stage 2	Bell Bay Power Pty Ltd	Natural gas	234	Announced
Woolnorth Stage 3	Hydro Tasmania	Wind	73.5 – 84	Announced
Musselroe	Hydro Tasmania	Wind	140	Announced
Heemskirk	Hydro Tasmania	Wind	160	Announced
Robbins Island	Pacific Hydro	Wind	140	Announced
Granville Harbour	Australian Power and Water, Marubeni	Wind	40	Announced
George Town	Energy Equipment	Waste	20	Announced
Circular Head wood centre	Forestry Tasmania	Wood waste	Unknown	Announced
Hobart	Pasminco	Waste heat	10	Announced
Winnaleah	Hydro Tasmania	Water	1.5	Announced
Meander	Hydro Tasmania	Water	1.9	Announced
Generator upgrades	Hydro Tasmania	Water	Unknown	Announced

¹ Basslink will have a continuous rating of 480 MW but is only expected to import 300 MW, due to system security constraints.

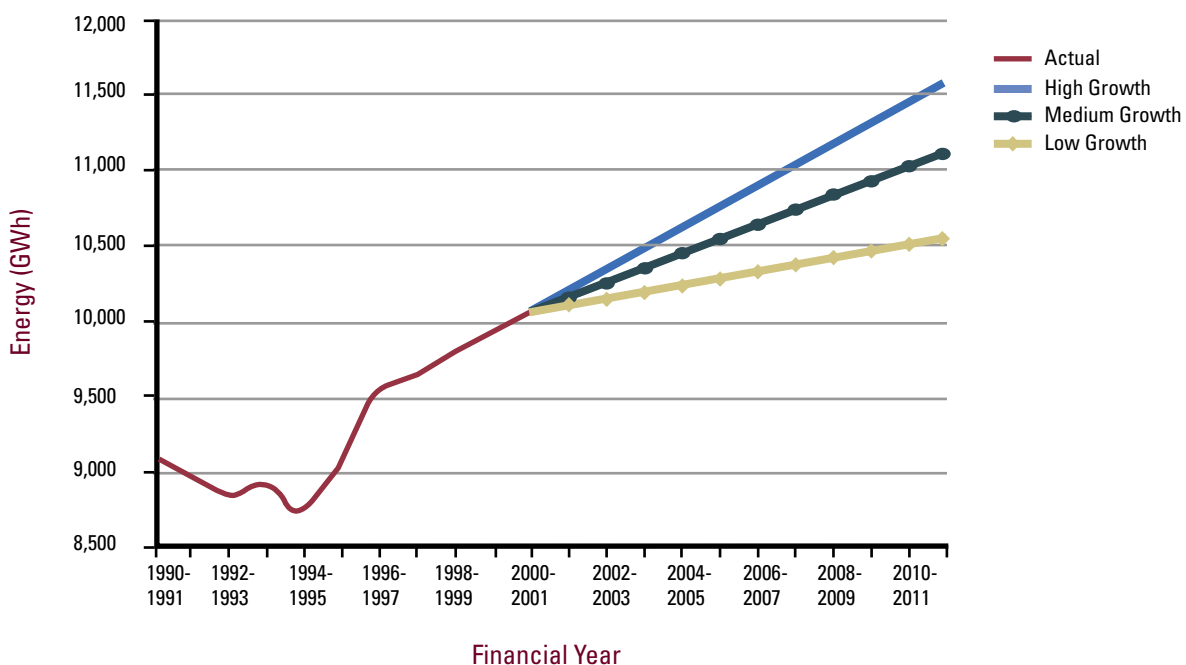
Source: System Controller 2002 Planning Statement

In preparing this revenue submission, Transend commissioned Sinclair Knight Merz (SKM) to estimate system load and maximum demand over the regulatory period. In reaching these estimates, SKM reviewed forecasts produced by the System Controller, Aurora, and the Australian Bureau of Agricultural and Resource Economics (ABARE).

SKM's report identifies low, medium and high system load and maximum demand forecasts as shown in Figures 6.4 and 6.5.¹

Figure 6.4 shows that the forecast growth in system load is 13.9% for the high case, 9.8% for the medium case, and 4.4% for the low case, for the period 2001-02 to 2011-12.

Figure 6.4: Tasmanian load: actual and forecast (including the major industrial customers), 1990-91 to 2011-12



Source: Sinclair Knight Merz

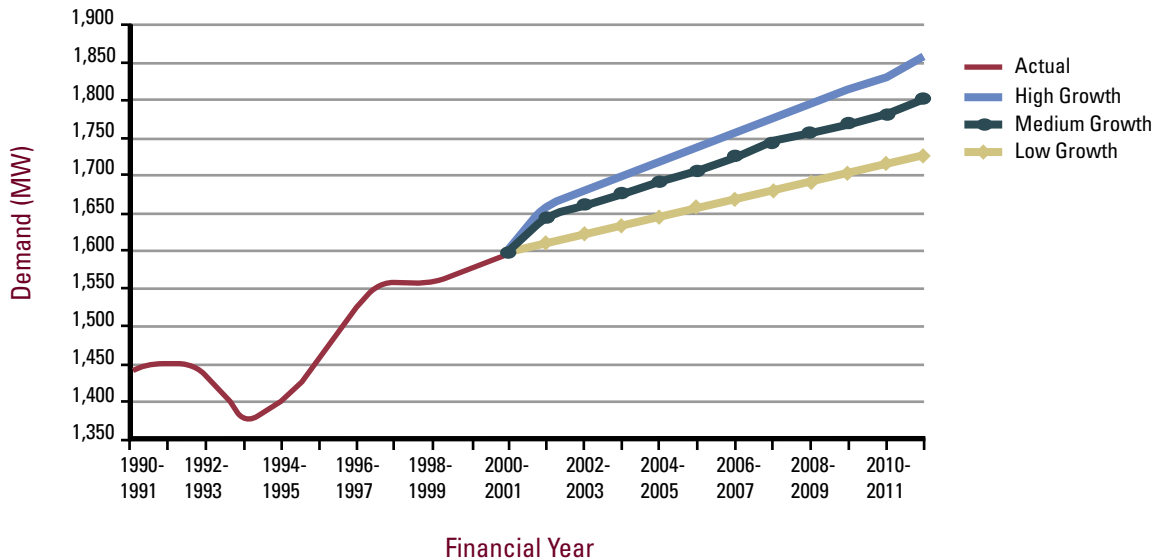
Figure 6.5 shows the system maximum demand, which is derived from the system load forecasts. The forecast data has been temperature corrected, resulting in an apparent step change in the first forecast year due to the mild winter in 2000-01.

The forecast growth in system maximum demand for the period 2001-02 to 2011-12 is 13.4% for the high case, 9.8% for the medium case and 5.5% for the low case.

It should be noted that even for the high case scenarios, average growth rates for system load and system maximum demand equate to an annual increase only slightly over 1%.

¹ SKM's work was based on the System Controller 2001 Planning Statement and Aurora information, as this was the most recently available information at the time of their analysis.

Figure 6.5: Tasmanian system maximum demand: actual and forecast (including major industrial consumers), 1990-91 to 2011-12



Source: Sinclair Knight Merz

Figures 6.4 and 6.5 do not include the impact of Basslink's export and import capability on the transmission system's forecast load and maximum demand.

6.2.3 Development capital expenditure forecasts

Probabilistic approach

In light of the significant uncertainty in load and generation forecasts, Transend has adopted a probabilistic approach to forecasting development capital expenditure.

With SKM's assistance, twenty-four scenarios were evaluated; they reflect combinations of different load growth and new generation outcomes. Each scenario was assigned a weighting that reflects its assessed probability of occurrence.

Three themes were adopted in developing the scenarios:

- load growth — high, medium, low
- impact of local generation in the Hobart area, or the loss of a major industrial load in the Hobart area
- additional wind generation — four cases representing possible future wind generation patterns on the west, north-west and north-east coasts of Tasmania.

SKM has undertaken detailed studies of load flow and applied Transend's security criteria to identify the required transmission development projects. The projects identified by SKM are included in Appendix 6 to this submission.

Each feasible development project is categorised as either a *fixed* or a *variable* project:

- *Fixed projects*
Those projects that analysis suggests are almost certain to proceed in the forthcoming regulatory period. General load growth, system security requirements or committed customer connections typically drive fixed projects. They are accorded a 100% probability in SKM's analysis, despite the uncertainty in load and generation forecasts.
- *Variable projects*
Those projects that typically depend on specific customer-driven developments proceeding, such as new generation proposals. Transend's analysis shows that these projects will proceed only if particular growth scenarios eventuate and/or proponents complete identified projects within present timeframes. The probabilities of these variable projects proceeding vary from 10% to 80% in SKM's analysis.

It is proposed that *fixed projects* be subject to a regulatory treatment that gives Transend strong incentives to improve efficiency. This is achieved by reflecting the forecast cost of these projects in Transend's maximum allowed revenue. This approach gives Transend strong incentives to complete these projects below the cost forecasts.

In contrast, the risks associated with *variable projects* are not within Transend's control. There are considerable uncertainties associated with the assessment of these projects, especially their timing.

Transend therefore proposes that if and when *variable projects* eventuate in the forthcoming regulatory period, they should be included in the regulatory asset base at *actual* cost. Further detail on this regulatory approach is presented in Appendix 1.

Transend's identified fixed development projects are categorised as Southern augmentation; NEM entry projects; and Other fixed development projects. See Tables 6.2, 6.3 and 6.4:

Table 6.2: Southern augmentation (in 2002-03 \$m)

Component	Estimated project cost
Transmission lines — new	30.2
Transmission lines — uprate 110 kV lines	7.0
Substations	18.2
Development capital sub total	55.4
<i>Renewal capital and operating cost component of project¹</i>	<i>11.5</i>
Project Total	66.9²

¹ For completeness, Table 6.2 shows \$11.5 million of expenditure, which relates to replacement and compliance works (capital expenditure) and dismantling of existing assets (operating expenditure). This expenditure is included in the respective renewal and operating plans, rather than the development plan.

² This total contains an allowance for interest during construction, which is calculated in accordance with the ACCC's recent regulatory decisions.

Table 6.3: NEM entry projects (in 2002-03 \$m)

Project	Estimated project cost
Inter-company metering — Transend/Aurora interface ¹	0.9
Quality of supply monitoring	0.1
State estimator	0.6
System security requirements	2.5
Total	4.1²

¹The inter-company metering figure is based on present TEC responsibilities. It has recently been suggested that these responsibilities may be extended, which will require this fixed allowance to be revised before the final revenue determination. No capital allowance is made for metering of the Transend/Hydro Tasmania interface, as Transend expects this service will be provided on a contestable basis. Should this assumption change, an additional 'variable' amount will be required for metering at the Transend/Hydro Tasmania interface.

²The NEM entry project total excludes \$1.0m of expenditure with an expected commissioning date before 1 January 2004.

Table 6.4: Other fixed development projects (in 2002-03 \$m)

Project	Estimated project cost
Transmission lines	22.4
Substations	20.6 ¹
Reactive support program	6.9 ²
Total	49.9

¹Of the substation projects, \$8.1m is for expenditure before January 2004, where the work will be commissioned after 1 January 2004.

²Reactive support figure excludes the Chapel Street part of the reactive support program, with an expected commissioning date before 1 January 2004, and the George Town part of the program (categorised as a variable project).

Southern augmentation

The tables show that the Southern augmentation project is a significant part of development capital expenditure in the forthcoming regulatory period. This project will augment the transmission system in the south of the state to install a 220 kV line from Liapootah to Lindisfarne. This project has been disaggregated into its major elements in Table 6.2. However, each element of the project forms an integral part of the overall project.

The project was submitted to the Reliability Network Planning Panel in December 2002; the Panel endorsed it at its meeting on 30 January 2003. The overarching objective of the project is to make supply to Hobart and southern Tasmania more secure by:

- removing the reliance and overload on Chapel Street Substation
- removing reliance on the availability of Gordon Power Station
- removing the potential overload on the existing 110 kV circuits from Chapel Street and Creek Road Substations to Risdon.

This project will provide a cost-effective platform for meeting the long-term load growth in southern Tasmania.

NEM entry

There are a number of development projects required for NEM entry which are summarised in Table 6.3:

- install NEC-compliant wholesale metering at Transend/Aurora interfaces
- install quality-of-supply monitoring equipment to measure compliance with connection agreements and Schedule 5.1 of the NEC
- replace field transducers associated with the state estimator, to meet NEMMCO's requirement that the state estimator converges reliably
- install back-up protection schemes to prevent the system collapsing in the event of non-credible contingencies (such as the simultaneous tripping of multiple transmission lines, or complete failure of the primary protection system). These systems are required under Schedule S5.1.9 of the NEC to protect against over- and under-frequency events and under- and over-voltage events.

Other development projects

The 'other' development projects summarised in Table 6.4 include augmenting the transmission line for the north-east of Tasmania from Norwood to Derby; a new substation in Mowbray for the Launceston area; and a 33 kV connection for Aurora at Risdon Substation. More detail about these projects is included in Appendix 6.

The development expenditure on fixed projects outlined in Tables 6.2, 6.3 and 6.4 is allocated to years in Table 6.5:

Table 6.5: Development capital expenditure on fixed projects January 2004 to 2008-09 (in 2002-03 \$m)

	Jan to Jun 2004	2004-05	2005-06	2006-07	2007-08	2008-09	Total
Expenditure	14.6	28.1	23.0	34.8	0.6	0.0	101.1
Roll-in to asset base	2.8	43.2	14.3	48.3	0.6	0.0	109.2

Table 6.5 shows both the annual spending on fixed development capital projects and the amount to be rolled into the regulated asset base. The difference arises because capital expenditure is rolled into the asset base only when the project is commissioned. The roll-in figure therefore includes \$8.1m of capital expenditure before January 2004, when the project is to be commissioned during the forthcoming regulatory period.

The development capital expenditure profile for fixed projects (Table 6.5) shows that these projects will proceed in the early part of the revenue period. This is consistent with the definition of fixed projects, which assumes a high degree of certainty with regard to their completion.

Fixed projects that are currently required to meet system security standards will be completed by 2007-08. After that, more capital expenditure may be needed to satisfy significant changes to load or generation. However, these projects are less certain, and are 'variable' in nature.

6.2.4 Development capital expenditure on variable projects

The list of variable projects in this submission is not exhaustive. The projects listed below are those identified by SKM in their scenario analysis, which was completed in September 2002. After SKM's analysis Transend received more enquiries about, and applications for, generation connection. Aurora has indicated that towards the end of the revenue period some alternative sites may require development for future load growth. Such projects would also be treated as variable projects for regulatory purposes.

There are three categories of variable projects:

- load-related
- generation connection requirements
- shared network costs as a result of new generation connections.

Each category is discussed in turn.

The variable projects identified by SKM that could be required to meet potential load growth are outlined in Table 6.6. Several of these projects will occur only with medium or high load growth, or in response to customers' connection requirements.

Details of the scenarios that underpin projects to meet potential load growth are discussed in Appendix 6. The preliminary costing for these projects is in the order of \$30m.

Table 6.6: Potential development capital expenditure — indicative variable projects to meet potential load growth January 2004 to 2008–09¹

Project
Southwood wood-processing facility (new radial line and connection to Knights Road Substation)
Mt Nelson 110/11 kV (new substation)
Wynyard area upgrade (new substation)
Hadspen transformer augmentation
Lindisfarne transformer augmentation
Additional Aurora feeder connections

¹ In January 2003 Aurora identified a potential new substation development at Dover, which was not included in SKM's analysis.

There are a number of projects that will take place only if proposed new generation proposals eventuate. Typically, connecting new generation will involve constructing assets that have both contestable and non-contestable components. The non-contestable components of these projects are listed in Table 6.7. The preliminary costing for these non-contestable components is in the order of \$20m.

These generator connections are presented as variable projects to allow Transend to receive allowable revenue if the connections are required. Revenue will be recovered from the relevant generators to the extent required by Chapter 6 of the NEC.

Table 6.7: Potential development capital expenditure — variable projects to connect generation January 2004 to 2008–09

Project
Tarraleah 220 kV connection to Liapootah Stage 1 ¹
Tarraleah 220 kV connection to Liapootah Stage 2
Woolnorth wind (110 kV connection bay)
Robbins Island wind (110 kV connection bay)
Musselroe wind to Derby (110 kV connection bay) ²
Heemskirk wind (220 kV connection bay)
Brighton waste to energy (11 kV connection)
George Town waste to energy (22 kV connection)
Bell Bay connection for 350 MW (110 kV connection bay)
Southern gas-fired power station (110 kV connection bay)

¹Tarraleah is an existing Hydro Tasmania power station, which currently has 110 kV connection to the network. Hydro Tasmania proposes to connect the generation at Tarraleah to the 220 kV network over two stages.

²SKM's analysis was based on the original Musselroe wind proposal of 140 MW. Hydro Tasmania has now lodged a preliminary connection enquiry for a further 150 MW of wind generation in this area.

There is a third group of variable projects that may be required, depending on the magnitude of new generation projects in specific regions. These projects are listed in Table 6.8, and in total have a preliminary costing in the order of \$110m.

Table 6.8: Potential development capital expenditure — variable projects for new generation (shared network) January 2004 to 2008–09

Project
Farrell-George Town 220 kV (new line)
Upgrade circuits to Smithton (north-west generation 65-136 MW)
Musselroe wind (increment to Norwood-Scottsdale-Derby line) ¹
Smithton to Sheffield 220 kV line (new line)
Reactive Support George Town 70 MVAR Stage 1
Reactive Support George Town 30 MVAR Stage 2

¹SKM's analysis was based on the original Musselroe wind proposal of 140 MW. Hydro Tasmania has now lodged a preliminary connection enquiry for a further 150 MW of wind generation in this area.

The projects listed in Table 6.8 will proceed only if (a) the amount of new generation in a particular region is enough to justify augmenting the transmission lines and (b) they pass the regulatory test.

Transend notes that the NEC requires NECA to identify an effective methodology to determine the relative benefits of such augmentations. The methodology would enable costs to be allocated according to the benefits derived. It is therefore possible that Transend may share the cost of the projects with the generators' proponents, but considerable work will be needed to determine the funding arrangements for such projects.

Tables 6.5, 6.6, 6.7 and 6.8 show that Transend would face a significant increase in its total development capital expenditure (i.e. fixed and variable), if all the presently identified variable projects proceed. It is likely that some, but not all, of the identified variable projects will be completed in the forthcoming regulatory period.

6.3 Renewal expenditure

6.3.1 Key drivers

Transend targets its asset renewal program to ensure the safety of its personnel, contractors and the public; improve network performance and meet its compliance obligations.

In the current regulatory period Transend has carried out an extensive renewal program, including installing oil containment and blast-wall facilities in its substations, replacing aged 220 kV and 110 kV circuit breakers and installing new high voltage switchboards.

In 1999 the company embarked on a major compliance program for its transmission lines around the State. This program is planned for completion in 2004 and aims to eliminate substandard conductor-to-ground clearances on transmission lines. In some cases, the ratings of the transmission circuits are increased to reduce power transfer constraints.

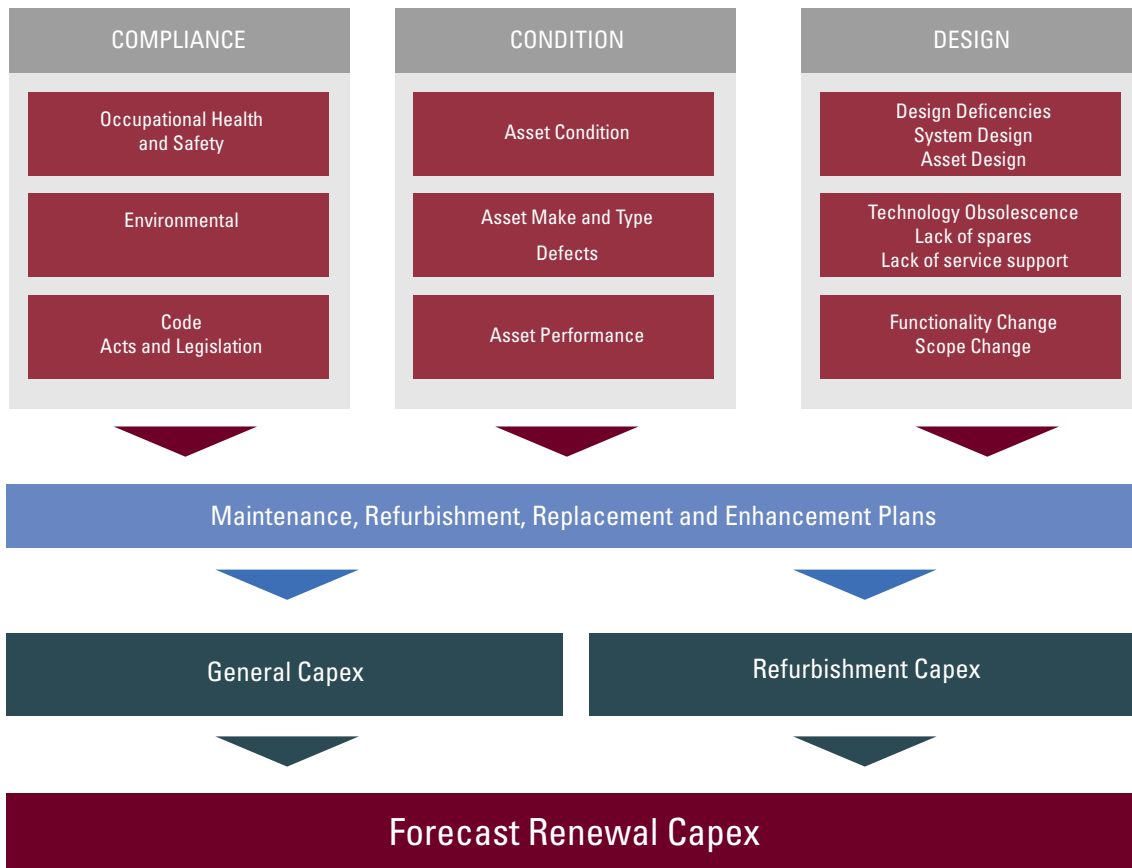
Additional expenditure of renewal capital is needed over the regulatory period to continue to:

- meet Transend's compliance obligations pursuant to the relevant legislation and codes, including those relating to environmental and safety aspects
- maintain asset performance, while monitoring the risks of an ageing asset base
- ensure that assets are of an age and technology that continue to be supported by manufacturers and service providers
- optimise the trade-off between maintaining and renewing assets, thereby minimising total life-cycle costs.

The key drivers for renewal expenditure in the forthcoming revenue period include:

- compliance
- condition of assets
- addressing asset design issues.

Figure 6.6 shows these key drivers in more detail.

Figure 6.6: Key drivers: renewal capital expenditure January 2004 to 2008–09

When the condition of assets is assessed the information is used either to identify equipment approaching the end of its useful life or to predict imminent failures. Programs for planned replacement and enhancement are then implemented.

Transend also analyses failures on particular makes and types of assets, to ascertain any design deficiencies. Transend supports this analysis by consulting manufacturers and other utilities that use similar assets.

Analysis of information about the condition and performance of assets shows that a significant number of existing assets need replacing or enhancing. It would not be prudent to delay renewing assets in poor condition beyond the forthcoming regulatory period. A number of projects are also justified on the grounds of the occupational, health and safety of Transend's personnel, contractors and the public.

6.3.2 Requirements for renewal capital expenditure

Transend's forecast of renewal capital expenditure is based on a carefully costed investment program.

Items targeted for renewal:

- 220 kV and 110 kV circuit breakers
- supply transformers and network transformers
- voltage transformers
- substation earthing systems
- post insulators
- substation security and surveillance systems
- site establishment components (including aged buildings)
- protection systems
- control systems
- removal of substandard spans on transmission lines
- transmission line foundations and conductors
- transmission line overhead earthing and communication systems.

Renewal of these items is addressed in Transend's programs of works. These programs are under way, with some approaching completion.

Table 6.9 shows more information on these programs and their drivers. Occupational health and safety is an additional driver for many programs, so this driver has not been identified separately. Transend aims to deal with most of the identified issues over the forthcoming revenue period; over the past four years, it has strengthened its strategies and developed processes to implement the programs.

Table 6.9: Renewal capital — program of works

PROGRAM OF WORKS <i>(With start year and target finish year)</i>	DRIVERS <i>(The drivers are general for a given program of works: not all drivers will apply to every project)</i>
Substation capital expenditure	
220 kV and 110 kV circuit breaker replacement <i>(1996–2010)</i>	Make and type defects; equipment reliability; technology obsolescence
High voltage switchgear <i>(1997–2008)</i>	Reliability and availability; conformance with industry best practice for protection, control, metering
Supply power transformer <i>(1996–ongoing)</i>	Poor asset condition; equipment design deficiencies; transformer paralleling capability; equipment standardisation
Network power transformer <i>(1993–2008)</i>	Poor asset condition; equipment reliability; spares management
Voltage transformer (VT) <i>(1999–2010)</i>	Environmental issues (replacement of VTs with high levels of PCB contamination); equipment design deficiencies; reducing risks of operator error; reliability and availability
Substation earthing system <i>(1998–2010)</i> Post insulators <i>(1999–2009)</i>	Step and touch potential; Earth Potential Rise (EPR) transfer Defects in make and type; reliability and availability
Substation security and surveillance system <i>(2000–2006)</i>	Heightened global security awareness; outdated access control and surveillance systems; compliance with industry guidelines for security fencing
Substation building and site upgrades <i>(1999–2010)</i>	Conformance with building codes and acts; operating environment requirements for sensitive secondary assets
Protection systems <i>(2001–2010)</i>	Obsolescence of technology and high maintenance costs; increased functionality requirements; reducing human errors in operating and testing
Control systems <i>(2001–2010)</i>	Better operator access, monitoring and control at substations; more information needed remotely; reducing maintenance costs in the long term
Transmission Lines	
Substandard clearances on transmission lines (upgrading 1,250 identified substandard spans) <i>(1999–2004)</i>	Public safety issues; conformance with industry guidelines as required under acts, Code and legislation
Transmission lines foundations and conductors <i>(2001–2007)</i>	Extending life; replacing copper conductors with all aluminium alloy core (AAAC) conductors, in line with industry best practice
Transmission line overhead earthing and communication system <i>(1997–2012)</i>	Improving communication infrastructure reliability; improving protection and availability of transmission assets; Code compliance (requirements for transmission protection communication system)

Table 6.10 shows the forecast roll-in renewal capital expenditure for each year from January 2004 to 2008-09. The roll-in figure includes capital expenditure before January 2004, where projects are expected to be commissioned during the forthcoming regulatory period.

The table also distinguishes between refurbishment expenditure and replacement and enhancement expenditure. This categorisation is consistent with the ACCC's recent revenue determinations, and Transend's capitalisation policy.

Table 6.10: Transend's forecast renewal capital expenditure January 2004 to 2008-09 (in 2002-03 \$m)

	Jan to Jun 2004	2004-05	2005-06	2006-07	2007-08	2008-09	Total
Refurbishment - roll-in to asset base	7.4	6.8	8.7	8.1	4.9	2.1	38.1
Replacement and enhancement - roll-in to asset base	9.5	23.0	29.9	30.5	32.0	31.8	156.8
Total¹	16.9	29.9	38.6	38.6	36.9	34.0	194.9

¹ Additions are not exact, due to rounding.

6.4 Non-network capital expenditure

6.4.1 Key drivers

In addition to capital expenditure on network assets, Transend incurs capital expenditure on non-network activities that are essential to operate the business.

Capital expenditure on non-network activities can improve operational efficiency across the whole business and can reduce business risks. Information technology (IT) systems are a significant part of this expenditure.

Capital expenditure on non-network activities is determined by the following key drivers and objectives:

- Meeting Transend's current and future business needs by effective management of all aspects of IT systems throughout the business: infrastructure, users, business applications and operational performance.
- Continuously improving information systems for planning the management of assets.
- Meeting the future IT requirements for a TNSP operating in the NEM, including separating Transend's IT infrastructure from the facilities Transend shares with Aurora and Hydro Tasmania, ensuring that Transend's control systems are compatible with NEMMCO's systems.
- Exploiting opportunities to make operations more efficient throughout the business.

6.4.2 Requirements for non-network expenditure

General information technology (IT)

Key IT initiatives planned for the forthcoming regulatory period:

- improved plans for disaster recovery for critical business systems
- continuing rationalisation of servers
- separation of domains.

Separation of domains involves separating Transend's IT infrastructure from the facilities Transend currently shares with Aurora and Hydro Tasmania. Domains must be separated before Tasmania enters the NEM.

Transend recognises the business risks in developing an independent IT infrastructure. Transend has therefore recently audited its IT controls and systems and, as a result, several initiatives are now under way to strengthen IT controls in the business.

An IT governance model has been developed to ensure effective management of all aspects of information technology throughout the business. Operating and capital plans are in place to meet Transend's future strategic IT needs.

NEM entry

NEM entry will have significant implications for the physical operation of the Tasmanian power system. In particular, much of Transend's responsibility for control of the Tasmanian power system is expected to be transferred to NEMMCO. It is therefore essential to ensure that Transend's and NEMMCO's control systems are compatible and that there are periodic upgrades to maintain this compatibility.

Transend has purchased a new network operation and control system (NOCS) that is compatible with NEMMCO's systems. The new system enables information about generation and transmission to be separated, which is necessary to establish a competitive wholesale electricity market.

Although expenditure for the NOCS in 2002-03 was substantial, more capital expenditure is required in the forthcoming regulatory period. For effective management of the transmission system, especially with Basslink and new generation projects, it will be essential that the NOCS be continually updated.

Asset management

To continue to undertake its asset management function efficiently, Transend is to further develop an Asset Management Information System (AMIS). AMIS will ultimately link information about assets, maintenance, system-performance assessment, works management, cost management, decision-support models, capital and operating works programs, and budgets.

Transend has a program of staged roll-out of the AMIS system, to maintain and increase its functionality over time and improve links with other IT platforms in the business.

Accommodation

The major item of non-network capital expenditure in the second half of 2003-04 will be the relocation of Transend's Hobart-based staff to a single office. It is expected that the building will be substantially complete by mid 2004, with staff movement completed in late 2004.

Since Transend's establishment, the company's staff in Hobart have worked in two sites, which has complicated the development of a new organisation. Although recognising the importance of this project for the organisation, it has been delayed to ensure that the new office will accommodate Transend's needs post NEM-entry.

Table 6.11 lists Transend's forecast capital expenditure for non-network projects for each year from January 2004 to 2008-09. The roll-in figure includes capital expenditure before January 2004, where projects are expected to be commissioned during the forthcoming regulatory period.

Table 6.11: Transend's forecasts of capital expenditure for non-network projects (in 2002-03 \$m)

	Jan to Jun 2004	2004-05	2005-06	2006-07	2007-08	2008-09	Total
Non-network projects - roll-in to asset base	7.0	6.9	5.5	1.5	2.3	3.5	26.7

6.5 Summary of capital expenditure requirements

Over the four years to 30 June 2002, Transend invested over \$170m in the transmission system in real terms (2002-03 dollars). This investment, along with the projects planned through to 2008-09, demonstrates Transend's commitment to:

- improving the reliability of power supply for Tasmanian consumers
- ensuring adequate transmission capacity will be available to meet forecast load growth
- responding to proposals for new connections to the transmission system.

The analysis presented in this chapter, together with Transend's supporting expenditure plans, demonstrates that more needs to be done in the forthcoming regulatory period. Table 6.12 summarises the capital expenditure requirements described in Sections 6.2, 6.3 and 6.4.

Table 6.12: Transend's forecasts of capital expenditure by category January 2004 to 2008-09 (in 2002-03 \$m)

	Jan to Jun 2004	2004-05	2005-06	2006-07	2007-08	2008-09	Total
Development expenditure on fixed projects	2.8	43.2	14.3	48.3	0.6	0.0	109.2
Refurbishment expenditure	7.4	6.8	8.7	8.1	4.9	2.1	38.1
Replacement and enhancement expenditure	9.5	23.0	29.9	30.5	32.0	31.8	156.8
Non-network expenditure	7.0	6.9	5.5	1.5	2.3	3.5	26.7
Total Fixed roll-in to asset base¹	26.8	80.0	58.4	88.4	39.8	37.5	330.8
Total Variable	To be determined annually ²						

¹ The roll-in figure includes total expenditure on assets commissioned during the forthcoming regulatory period. Some expenditure will be incurred before the regulatory period starts. All capital roll-in for network expenditure includes interest during construction, calculated in accordance with the Commission's recent regulatory decisions. IDC is not included for non-network expenditure.

Table additions are not exact, due to rounding.

² Variable capital adjustment will be determined in accordance with formula in Appendix 1.

In real terms, the average fixed capital expenditure proposed for the forthcoming regulatory period is approximately \$60m a year, compared to an actual average expenditure of \$43m a year (2002-03 dollars) over the four years to 30 June 2002. It is forecast that a further \$55m of capital projects will be commissioned in 2002-03.

Transend's annual revenue will be adjusted to reflect commissioning of variable development capital projects, in accordance with the arrangements described in Appendix 1.

It should be emphasised that the forecast fixed capital expenditure in this submission is the product of detailed analysis, taking account of the significant changes in the forthcoming regulatory period.

Renewal programs are under way, and much of the fixed development expenditure has been identified for many years in Transend's (and its predecessor's) strategic transmission plans. Factors such as falling water storage levels, NEM entry and Basslink reinforce the need for these projects. With regulatory approval now obtained for most of the development expenditure, Transend is well placed to deliver these strategic projects during the forthcoming regulatory period.