Submission to the Essential Services Commission

Re: Electricity Distribution Price Review 2006 – 2010 Draft Decision

Capital Expenditure

UNITED ENERGY
Distribution

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This submission sets out additional information to substantiate United Energy Distribution's (UED) responses on aspects of the Essential Service Commission's (Commission's) Draft Decision that relate to capital expenditure benchmarks.

Throughout this price review, UED has responded in good faith to the Essential Service Commission's (Commission) concerns and requests for information, and has endeavoured to provide information in accordance with the Commission's requirements. In particular, UED has previously provided information which has explained that the company's use of the PB Power model to verify forecasts of asset replacement and reinforcement expenditure is based on historical and forecast information, thereby providing the explanatory link between actual and benchmark capital expenditure that the Commission wants to explore.

Although UED has recognised and responded to the Commission's concerns regarding the determination of capital expenditure benchmarks, the Commission has not properly taken these submissions into account in its Draft Decision. Instead, the Commission has relied too heavily on simple historic trends and what appear to be subjective judgements of its adviser (Wilson Cook) to justify its Draft Decision, despite clear evidence and thorough analysis which shows that historic trends do not provide a reasonable starting point for determining future capital expenditure benchmarks.

Notwithstanding the information already provided by UED, this submission provides more detailed information to explain the relationship between recent historic levels of capital expenditure and future benchmark requirements. Taken together, UED's submissions to the Commission provide a consistent data set which clearly substantiate the revised expenditure benchmarks proposed by UED.

UED is disappointed that the Commission has decided not to include allowances for the company's proposed undergrounding and technology initiatives, and is proposing a regulatory environment that is not conducive to such initiatives. As explained in the company's Price-Service Offering, these initiatives would have delivered substantial benefits to consumers in the immediate future and over the longer term. UED believes that an electricity distributor - as the provider of a very important service to the community - should not be inhibited from taking on a position of corporate responsibility and initiating programs that look to meet the future wants and needs of the community. In view of these considerations, UED asks the Commission to reconsider its position on these matters, and to include expenditure allowances for these important initiatives in its Final Decision.

The table on the following page provides a summary of UED's proposed revised capital expenditure benchmarks.

Benchmark Capital Expenditure by Category (Real $m at June 2004)

	Original Submission	Draft Decision	Revised Submission	Basis for revised benchmark; Reason for variation between original and revised submission
Reinforcements Demand	115.7	85.2	103.5	Benchmark verified using modelling independently reviewed by PB, with inputs reviewed by GHD. Benchmark maintains current high level of utilisation and network reliability. Benchmark reconciled to recent actual expenditure. Benchmark reflects cost of "bottom-up" estimates of requirements. Application of demand forecasts assuming 10th percentile weather and medium economic growth reduces the benchmark by $12.2 million.
Customer Initiated Capital	121.8	108.3	101.2	Benchmark based on modelling (reviewed independently by PB) using kVA demand growth as underlying cost driver. Modelling inputs reviewed by GHD. Application of medium economic growth forecast reduces benchmark by $20.6 million.
Reliability & Quality Maintained	239.3	177.8	233.6	Benchmark expenditure consistent with maintaining the asset age profile at a level consistent with maintaining present reliability. Benchmark verified using modelling independently reviewed by PB, with inputs reviewed by GHD. Benchmark reconciled to recent actual expenditure. Benchmark reflects "bottom-up" cost of planned works
Reliability & Quality Improvements	11.7	5.4	5.4	Reliability improvement expenditure to be "self-funding" under S factor. Benchmark covers cost of power quality improvement works
Environmental, Safety & Legal				
- Operational	14.3	14.3	14.3	The Commission adopted UED's proposed benchmarks
- Electrical Safety Management Scheme	45.2	19.4	35.4	Details set out in separate submission
Sub Total	59.5	33.7	49.7	
Non-Network General Assets – IT	50.1	40.1	50.1	UED has submitted a detailed IT Strategic plan to support its proposed benchmark. The Plan has been independently reviewed by Accenture
IT IMRO Program *	Not Specified	0.0	11.0	UED's original PSO allocated 100% of the replacement of the current customer and billing information system to the metering price controls. On advice from the Commission UED has re-allocated some of those costs (60%) back into Duos.
Undergrounding	10.0	0.0	10.0	Justified on net community benefit
Technology Initiatives	25.0	0.0	25.0	Justified on net benefit to consumers
Non-Network General Assets – Other	14.0	14.7	14.7	The Commission adopted UED's proposed benchmarks
Total Spend	**647.1**	**465.2**	**604.2**	
Customer Contributions	-24.3	-20.7	-19.3	
Net Capital	**622.8**	**444.5**	**584.9**	

As noted in the above table UED's revised proposed benchmarks have now been substantiated through:

- the application of robust engineering models that predict replacement and reinforcement capital expenditure requirements, based on an analysis of the age profile, condition and risk the of asset base, and the forecast utilisation of the network;
- "bottom-up" estimates of expenditure requirements, reflecting the summation of costs of individual projects identified through the company's asset management and network planning processes, details of which are published each year;
- a comparison on the relationship between recent historical and future benchmark expenditure requirements, and an examination of the drivers of changes in expenditure requirements over time;
- a high-level "reasonableness test" undertaken by PB Associates correctly applying the approach that Wilson Cook attempted to apply in section 4.3 of its report to the Commission; and
- a "reasonableness test" undertaken by Accenture in reviewing UED's IT Strategic Business Plan.

Each of these independent approaches produces estimates of UED's capital expenditure benchmarks that are consistent with one another.

In addition to providing all of the information described above, UED has commissioned three independent reviews (by engineering consultants PB Associates and GHD), which lend further substantial support to the company's position. These reports form part of this submission, and are appended to it.

In presenting further information that explains the relationship between recent actual expenditure and future benchmarks, UED maintains its view that historic capital expenditure trends do not provide a reasonable basis for setting future capital expenditure benchmarks. The veracity of this view is supported by the analysis presented in this submission, and in the independent experts' reports that form part of this submission. The Commission will be aware that UED has always held concerns about the use of recent historic expenditure levels to inform regulatory decisions about future benchmark allowances.

The submission sets out analyses demonstrating that if implemented, the Draft Decision's proposed expenditure benchmarks would lead to a substantial deterioration in the age of the asset base, and a substantial and unsustainable increase in asset utilisation. Both of these outcomes will inevitably lead to a reduction in the reliability of the network.

Wilson Cook's report does not give any consideration to the requirement for the building block benchmarks to maintain a standard of "reliability and quality maintained" and therefore Wilson Cook has no method for determining whether the proposed level of expenditure is consistent with this required level of performance. This is a very significant deficiency in the report.

It is apparent from the Wilson Cook report that those consultants have not considered whether the deterioration in asset age (and condition) that would flow from the report's recommendations is consistent with the Commission's objective that reliability and quality

should be maintained. The Commission has failed to take account of this important matter in its Draft Decision, with the result that it is proposing a level of capital expenditure which is bound to fall short of that required to facilitate achievement of its statutory objective of protecting customers with regard to price, quality and reliability.

UED is therefore concerned that there is a methodological weakness in the Wilson Cook report which has led it and the Commission to adopt capital expenditure benchmarks that are inconsistent with:

- the Commission's statutory objectives; and
- the framework established by the Commission itself, which funds "reliability and quality maintained" through the building blocks and leaves any reliability and quality improvement programs or capital expenditure to be self-funding at the DB's discretion.

The Commission should understand that if it adopts capital expenditure benchmarks below those which facilitate the maintenance of overall network reliability then the Commission will, in effect, be abandoning the framework that it established for this review. Were this to take place, the Commission would also need to re-establish many aspects of its price review framework to allow for the change to this fundamental assumption. This would include:

- reopening the company's operating expenditure benchmarks,
- reopening the reliability targets and service incentive mechanism,
- reopening the GSL thresholds and provisions made for GSL payments; and
- carefully considering the company's ability to meet statutory safety and environmental compliance obligations.

Wilson Cook has arbitrarily reduced capital expenditure without analysing its deleterious impact on reliability, safety or environmental outcomes. In fact, in discussions with Wilson Cook on 1 July 2005 (at which representatives of the Commission were present) the consultant commented that: "If we were in a war situation you wouldn't be spending anything". This comment illustrates that the consultant is taking a short-term view to trim capital expenditure without any regard to the Commission's objectives or the long-term impact on customers.

Quite simply, without any substantive supporting modelling or analysis, the judgments made by Wilson Cook are ill-considered, contrary to the objectives of the regulatory framework, and cannot reasonably be considered to be consistent with maintaining the long term reliability of the network. The Commission should revert to proper detailed analysis in its Final Decision, which UED is confident will demonstrate the necessity for the Commission to adopt capital expenditure benchmarks that are consistent with those proposed by the company.

1 Introduction

This submission sets out UED's response to the capital expenditure benchmarks proposed in the Commission's Electricity Distribution Price Review 2006-10 Draft Decision. The submission is structured as follows:

- Section 2 presents a brief recap of UED's and the Commission's approach to establishing the capital expenditure benchmarks.
- Section 3 provides an overview of three independent studies commissioned by UED in relation to the Draft Decision's proposed capital expenditure benchmarks.
- Sections 4, 5 and 6 raise specific concerns with the Commission's approach to:
  - replacement capital expenditure ("reliability and quality maintained");
  - reinforcement (demand-related) capital expenditure; and
  - customer-initiated capital expenditure.
- Sections 7, 8, 9 and 10 set out UED's further comments in relation to:
  - reliability and quality improvements;
  - environmental and legal compliance capital expenditure;[1]
  - non-network general assets – information technology; and
  - non-network general assets – other.
- Section 11 provides further substantiation of UED's forecasts by providing a high-level reconciliation of historic expenditure to future capital expenditure benchmarks.
- Section 12 concludes the submission with Table 12.1 setting out the Draft Decision's proposed capital expenditure benchmarks alongside those proposed by UED in response to the Draft Decision.

Copies of all letters written to the Commission by UED since the Draft Decision was published along with the expert reports commissioned by UED form part of UED's response to the Draft Decision and are provided as appendices to this document.

[1] A separate submission sets out further information to substantiate UED's revised electrical safety-related capital and operating expenditure.

2 Recap on UED's and the Commission's Approach

In the course of the current price control review the Commission has expressed concern regarding the framework for regulating capital expenditure, and has stated that it "is concerned about the short term focus of the current regulatory model and the implications for long term network reliability".

UED has previously stated that it accepts the Commission's desire to improve the regulatory regime so that all stakeholders can be more confident that the integrity and reliability of the distribution networks will be maintained over the long-term.

UED has responded in good faith to the Commission's concerns and requests for information throughout the review, and has endeavoured to provide information in accordance with the Commission's requirements. In particular, UED has previously provided information which has explained that:

- the company's use of the PB Power model to verify forecasts of asset replacement and reinforcement expenditure is based on historical and forecast information, thereby providing the explanatory link between actual and benchmark capital expenditure that the Commission wants to explore (UED Price Service Offering (PSO), page 12);
- customers have benefited and will continue to benefit from UED's economic deferral of capital expenditure and increased asset utilisation (UED PSO, pages 56- 64, 87, 95; UED's submission to the Position Paper, page 22);
- the regulated asset base consists only of capital *actually expended* by the business. Efficiency gains achieved by the company in executing capital works are therefore fully reflected in the regulatory asset base value, and in this way, flow through to consumers (UED's submission to the Position Paper, page 27);
- over the 2001-2005 regulatory period UED has delivered additional reliability benefits to customers worth approximately $40 million to date, compared with the Commission's benchmarks (UED PSO, page 34; UED's submission to the Position Paper, page 6); and
- imposing substantial reductions in UED's proposed capital expenditure (whilst acknowledging that this expenditure may be higher than historic levels) is not consistent with achieving the Commission's objective of long term reliability (UED's submission to the Position Paper, page 26).

Although UED has recognised and responded to the Commission's concerns regarding the regulation of capital expenditure, the Commission has not properly taken these submissions into account in its Draft Decision. Instead, the Commission has relied too heavily on simple historic trends and what appear to be subjective judgements of its adviser (Wilson Cook) to justify its Draft Decision, despite clear evidence and thorough analysis which shows that historic trends do not provide a reasonable starting point for determining future capital expenditure benchmarks.

Notwithstanding the information already provided by UED, this submission provides more detailed information to explain the relationship between recent historic levels of capital

expenditure and future benchmark requirements. Taken together, UED's submissions to the Commission provide a consistent data set which clearly substantiate the revised expenditure benchmarks proposed by UED[2]. Those proposed benchmarks have now been substantiated through:

- the application of robust engineering models that predict replacement and reinforcement capital expenditure requirements, based on an analysis of the age profile, condition and risk the of asset base, and the forecast utilisation of the network;
- "bottom-up" estimates of expenditure requirements, reflecting the summation of costs of individual projects identified through the company's asset management and network planning processes, details of which are published each year;
- a comparison on the relationship between recent historical and future benchmark expenditure requirements, and an examination of the drivers of changes in expenditure requirements over time3; and
- a high-level "reasonableness test" undertaken by PB Associates4 correctly applying the approach that Wilson Cook applied in section 4.3 of tis report to the Commission.

In addition to providing all of the information described above, UED has commissioned four independent reviews, which lend further substantial support to the company's position.[5]

In presenting the information in section 11 of submission, UED maintains its view that historic capital expenditure trends do not provide a reasonable basis for setting future capital expenditure benchmarks. The veracity of this view is supported by the analysis presented in this submission, and in the independent experts' reports that form part of this submission. The Commission will be aware that UED has always held concerns about the use of recent historic expenditure levels to inform regulatory decisions about future benchmark allowances. These concerns are exacerbated by the approach adopted by Wilson Cook - and accepted by the Commission - for the following reasons:

- Examination of recent levels of reinforcement expenditure provides no meaningful indication of future expenditure requirements unless there is a careful analysis of the corresponding levels of past and future capacity utilisation. The independent reports provided by GHD and PB Associates suggests that no such analysis has been undertaken by Wilson Cook. The Wilson Cook report contains insufficient analysis to substantiate its proposed expenditure reductions. In particular, the Wilson Cook report fails to consider the risks to reliability, service levels, safety and environmental outcomes associated with the adoption of its proposed expenditure benchmarks. By

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2 UED's revised capital expenditure benchmarks are summarised in section 12 of this submission.

3 This information is provided in section 11 of this submission.

4 Refer to Section 2.4 of the PB report titled Price *Review Support: United Energy Distribution*, at Appendix 1 of this submission

5 These reports form part of this submission, and are attached as Appendices 1, 2 and 3. An overview of some of the key conclusions of these reports is provided in section 3 of this submission.

contrast, UED has presented information regarding these risks to the Commission in this and other submissions. The Commission should not rely on the Wilson Cook report in determining UED's expenditure benchmarks.

- "Trend analysis" which considers recent actual investment (undertaken over the past 5 to 10 years) fails to take into account the underlying age profile of the asset base, and the pattern of investment that has occurred over the past 40 to 50 years to create the asset base that exists today. For an historical trend to be meaningful for capital expenditure it needs to extend across the whole life of the asset it purports to represent. Given the long life cycles of network assets (typically, 40 to 50 years), and the relationship between asset age and performance it is not possible to derive a robust estimate of replacement capital expenditure requirements simply by examining recent actual levels of expenditure. Indeed, the capital expenditure benchmarks proposed by UED for the forthcoming regulatory period are not a variation of the Commission's 'historical trend', but rather a reflection of the lumpiness of capital expenditure given the nature and life of the assets, and the considerable change in the economic, structural and ownership framework of Victorian distribution companies over the past 10 years.

In view of the second point listed above, UED sought an explanation from the Commission as to the Commission's view of the time horizon over which the "trend" in historic expenditure should be taken as an indicator of future expenditure requirements.[6] In raising this query, UED noted that if the Commission's definition of trend analysis encompassed an examination of the pattern of investment over the past 40 to 50 years, the company would be more comfortable with the Commission's approach. Unfortunately, representatives of the Commission at the forum refused to provide a clear response to UED's enquiry.

Notwithstanding this, UED acknowledges the Commission's desire to understand why future capital expenditure will differ from recent historic spend. UED has previously used the PB Power models (models which the Commission's predecessor employed to set capital expenditure benchmarks) to link future capital expenditure benchmarks with historic levels of expenditure – thereby also taking into account the past pattern of investment and the life cycles, age and condition of network assets. Details of this analysis is contained in UED's PSO (see pages 78, and 84 to 101) together with a description of the trend analyses that the company understood the Commission had requested.

The Draft Decision indicates that the Commission and its consultants are sceptical about the application of models such as the PB models, and instead have preferred to rely on trend analysis and "professional judgement". UED accepts that ultimately, the question of determining expenditure benchmarks is a matter of judgement. However UED has adopted a rigorous and systematic approach to its decision analysis, with the express intention of ensuring that such judgements can be substantiated with reference to verifiable data and objective analysis. By contrast, Wilson Cook and the Commission simply rely on their 'professional judgement' to justify decisions that have no other objective justification.

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[6] This question was raised by Andrew Schille on behalf of UED at the public forum convened by the Commission on 12 July 2005.

UED also recognises that all models need to be applied in a robust manner, and care needs to be taken to ensure the integrity of all input data and assumptions. Indeed, in view of the need to ensure the integrity of input data, UED commissioned an independent report from GHD to review the input assumptions applied by UED in its capital expenditure modelling[7]. As noted in section 3, GHD's independent assessment confirmed that with the exception of the use of the high economic growth scenario as the basis for its Reinforcement Capital expenditure forecasts, UED's approach to determining the inputs to the PB Associates models is reasonable.

UED also accepts that legitimate calibration issues can arise in the use of engineering models. However, it is unreasonable for the Commission to accept the unsubstantiated judgements of its appointed consultants (Wilson Cook) whilst ignoring the information produced by robust and systematic decision support tools that employ actual data (namely, the PBA models and UED's various submissions to the Commission). UED commissioned PBA to provide a detailed explanation and substantiation of its models in light of the criticisms contained in the Wilson Cook report.[8] PBA concluded that many of the comments contained in the Wilson Cook report with respect to the PBA models are incorrect, and that other comments made by Wilson Cook could easily be interpreted in a manner which is unfavourable to UED. PBA considers that the arguments contained in the Wilson Cook report cannot be relied upon when reviewing UED's PSO.

[7] Further details are provided in Section 3.2. GHD's report forms part of this submission and is attached at Appendix 2.

[8] PBA's report is attached at Appendix 1, and forms part of this submission.

3 Independent Reviews

Following the publication of the Draft Decision, UED commissioned four reviews to independently examine issues associated with the expenditure benchmarks proposed in the Draft Decision and the report prepared by Wilson Cook[9], on which the Commission has relied heavily for the purpose of determining the proposed capital expenditure benchmarks.

3.1 PB Associates

The first of these reports, prepared by PB Associates (PBA) examines the methodology employed by Wilson Cook (WC) in making its recommendations to the Commission on appropriate levels of future expenditure benchmarks, and in particular, capital expenditure for replacement of assets and to allow for anticipated growth in the network including new customer connections. The scope of PBA's work included responding to the specific comments made in the WC report with regard to the PBA capital expenditure forecast models and their use in supporting UED PSO. PBA's report[10], which forms part of this submission is attached as Appendix 1.

Some of the key findings of PB's independent review of Wilson Cook's report are cited below:

- "The general commentary relating to UED's submission indicates that WC considers that a sound approach was taken to asset management practices and that the basis for the forecasts submitted was reasonable."
- "The comparative analysis conducted by WC indicated that UED were in line with, or performing better than, other distributors. WC also applied a "rule of thumb" estimate to indicate whether the distributors overall expenditure forecasts were within a reasonable range. However, the rule of thumb contained estimates for replacement and growth related capex only, and was compared to the distributors total capex submission including items such as reliability and quality improvements, environmental, safety and legal, SCADA and communications, and non-network capex. This comparison resulted in the [erroneous] conclusion that the UED capex forecasts were outside the reasonable range produced by this "rule of thumb". An alternative analysis was conducted by PB Associates which compared only the replacement and growth related capex components and this showed that the UED forecasts provided a reasonable correlation to WC's rule of thumb."
- "WC raised a number of issues regarding growth rates, unit costs and asset lives used in the forecasting process but did not provide any details explaining how these issues where quantified and therefore linked to the recommended reductions in capex."

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9 *Electricity Distribution Price Review 2006: Principal Technical Consultant's Final Report*, prepared for the Essential Services Commission of Victoria By Wilson Cook & Co Limited, May 2005

10 Price Review Support: United Energy Distribution, Report prepared by PB Associates, August 2005

- "PBA considers that many of the comments and findings relating to the PB models in the WC report are unsound and without basis. As such, the arguments contained in the WC report cannot be relied upon when reviewing the Distributor's application."

- "It is important to state that PB considers many of the comments contained in the WC Report with respect to the PB models to be incorrect and that other comments could easily be misinterpreted. As the WC review and findings do not appear to be based upon detailed and quantitative analysis of the PB Models, it may not be appropriate to base any recommendations on these opinions."

- "Based on WC's stated approach to evaluating capital expenditure UED's proposed replacement capex appears reasonable in all aspects. A few issues are raised regarding the methodology for forecasting reinforcement and customer connections capex however the link between these issues and how these have been quantified by WC is not detailed."

- "Apart from noting that the forecast expenditure is higher than historical capex levels the WC Report does not provide any detailed analysis as to why the UED forecast replacement capex should be reduced by 30% and the reinforcement and customer connections capex reduced by 30% and 15% respectively."

PBA's responses to Wilson Cook's comments regarding the alleged over-estimation of capex benchmarks by the PBA models are summarised below:

- "WC has made a number of general statements in its report relating to the PB Models and the development of these models with the Distributors to forecast Capex during the review period. PB considers some of these statements to be incorrect and others may be misconstrued [to UED's disadvantage]."

- "From a reading of the WC report, [a] robust evaluation does not appear to have been performed [by WC], and it is our understanding from UED that the detail of the UED data used by PB in developing these models has not been assessed by WC."

- "PB considered that WC statements relating to a general expectation that the models will over-forecast to be a gross misrepresentation of the PB Models as an application, and consider these statements to be wholly inappropriate."

- "Due to the issues detailed above, PB Associates consider that recommendations by WC on appropriate levels of capex based upon their understanding of the PB Models to be unfounded."

In relation to Wilson Cook's recommendations regarding expenditure benchmarks for Reliability and Quality Maintained, PBA stated:

- "In an attempt to understand how WC's observations might be quantified, PB Associates carried out an analysis taking a conservative approach to the model inputs by using the lower of the UED or the Victorian average [unit] costs, and the higher of the UED or Victorian average asset lives. This conservative approach also removed the use of the "risk" function in the model. The resulting model outputs produced a maximum reduction of 12% compared with the original replacement forecast in the EDPR submission. Whilst PB does not necessarily accept that the changes in unit costs and asset lives are appropriate, the resulting reductions are grossly out of line with the 30% reduction recommended by WC

and it is difficult to understand the basis for the 30% recommendation based on the level of detail provided in the WC report."

In relation to UED's application of planning criteria and the distinction between probabilistic and deterministic planning, PBA stated:

- "WC appears to have misunderstood the application of planning criteria within the growth model. WC relates a perceived inherent overestimation within the model based upon its view that the model is deterministic in nature and uses a 10% probability of exceedance (PoE) forecast, and as such, does not reflect the UED probabilistic approach to network planning.

- "It is important to stress that the model was developed to account for probabilistic/risk based network planning. The criteria applied within the model were specifically provided by UED to account for its probabilistic planning approach. We consider it incorrect to relate deterministic modelling to inherent overestimation. We also consider it incorrect to suggest that a 50% PoE forecast must be applied within a deterministic model."

- "It is can readily be shown that deterministic criteria can be defined to reasonably reflect a probabilistic type of analysis, particularly when applied at the macro level as in the PB Model. It is also easy to show that suitable criteria can be defined for any PoE forecast, and provided an equivalent risk is assumed, then the capex should be insensitive to the PoE adopted for modelling, provided the appropriate criteria are applied. The criteria applied by UED in the PB Growth model were specifically defined to account for both its use of a probabilistic methodology, and the use of a 10% PoE forecast."

- "PB assumes that WC has misunderstood the application of investment criteria in the PB Growth produced for UED and this is why they suggested a 50% PoE should be used. Specifically, the comments made by WC with respect to a deterministic model and the appropriateness for a 50% PoE forecast, may be incorrectly interpreted as indicating PB has applied a strict N-1 type of deterministic criteria. This certainly is not the case - the criteria applied in the model are far more aggressive than this."

- "PB has performed further growth modelling, applying strict N-1 criteria, to demonstrate the more aggressive nature of the criteria applied in the PB growth by UED. This modelling indicated that a strict application of N-1 criteria would require approximately 30% more capex than that indicated in the PB base case model even if we assume strict N-1 criteria applied with a 50% PoE peak demand forecast."

- "The WC report appears to justify its recommendations of capex reduction, partly on its understanding of the application of the model in these areas. As this understanding may be incorrect, it does not appear appropriate to base any recommendations on these factors."

In relation to New Customer Connection capital, the PBA report notes the difficulties and errors associated with estimating expenditure benchmarks on the basis of customer or connection number forecasts. The PBA report states:

- "With respect to a kVA based model as opposed to a customer number based model, it is important to note that a customer based model can be sensitive to the customer number forecasts, particularly at the HV level. Typical HV connections costs may be in

the order of 1000 times greater than residential connection costs, and as such, small changes in customer connection numbers particularly between voltage levels can have large sensitivities to capital expenditure forecasts."

On the issue of unit costs, the PBA report states:

- "WC has not provided any specific details to substantiate its opinion that some growth model related costs may be high, or exactly which model segments these statements may relate to. As such, it is difficult to provide specific clarifications on the MCR developments to address WC concerns."
- "It may be important to re-state that PB performed a comparative analysis of UED model costs ($/kVA of capacity) with other Victorian distributor's during the original modelling exercise. This comparison exercise indicated the UED MCRs to be broadly in line with other companies."

Finally, PBA has assessed the impacts of Wilson Cook's proposed reductions in capital expenditure benchmarks as follows:

- "PB has used the growth model to provide some indicative insight into the potential consequences of capex reductions. This modelling examined the impact on network utilisation for reductions in capex due to reduced levels of reinforcement capacity. This modelling indicated network utilisation would increase by approximately 1.24% for every 10% reduction in growth capex over the 2006-2010 period[11]. Noting the already high utilisation of the UED network, if this impact was reflected on the actual network then increased proportions of the network may have an increased risk of a post contingent loss of supply, and the operating flexibility of the network could be reduced further."

3.2 Independent Review of UED's Modelling Inputs by GHD

The second review commissioned by UED is an independent assessment by GHD of the reasonableness of the assumptions made by UED in formulating inputs to the PBA asset replacement and demand-related reinforcement capital expenditure estimating models. These inputs are:

- unit cost rates;
- asset lives and remaining lives;
- asset condition assessments;
- planning thresholds for utilisation trigger levels for reinforcement expenditure;

GHD sought to establish for each of the inputs to the PBA model:

[11] The utilization % quoted here is on the base used within the model – N-1 cyclic for sub-transmission lines and substations, and N cyclic for HV feeders. The network utilization has been calculated by calculated applying a weighted average across model segments, using the demand in the segment as the weighting.

- whether the input data used has been independently verified;
- whether the input data used can be independently verified from public domain material;
- whether the methodology adopted by UED in preparing its inputs to the PBA model differed in any material respect from the process for generating inputs to UED's annual internal planning process for its capital expenditures; and
- whether other issues which in GHD's experience are likely to affect the acceptability of the modelling results were likely to have affected the inputs to the PBA models.

GHD's report[12] forms part of this submission and it is attached at Appendix 2.

It is noteworthy that GHD's report states:

> "GHD's opinions expressed in this draft Report have been formed independently. UED has not sought to fetter or direct GHD's judgment in forming its opinions."

GHD's report concluded:

> "GHD's view is that UED's approach to the inputs to the PB Associates models for projecting capex for Reinforcement and Reliability and Quality Maintained expenditures in the 2006-2010 regulatory period is reasonable.
>
> With respect to specific issues, GHD's view is:
>
> - The use of 10 percentile forecast is consistent with the requirements of the regulatory environment that UED faces, where only extreme weather events are removed from the reliability figures for the purpose of calculating regulatory penalties and incentives.
> - The use of a high economic growth scenario as the basis for the underlying demand forecast rather than a central or medium growth scenario, has the potential over the regulatory period to bias upwards the estimated Reinforcement Capex, particularly as air-conditioning penetration approaches its natural upwards limit in UED's territory. GHD understands that the effect of adopting a lower scenario for economic growth would be to reduce projected Capex for Reinforcements. UED should use the medium growth scenario as the basis for its forecasts, in preference to the high growth scenario.
> - UED's approach in setting its utilisation thresholds is consistent with a risk-based, rather than a conventional N-1 approach and should give rise to lower forecast Reinforcement Capital expenditure than would otherwise be the case.
> - UED's unit cost rates are reasonable.
> - The asset lives adopted are reasonable, with the exception of 11 KV and low voltage cable, where UED's asset life should be increased to reflect those used in the recent South Australian determination.

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[12] United Energy Distribution's Capital Expenditure Forecast 2006 – 2010 Independent Review of UED's Model Input Assumptions Confidential Report – August 2005.

- The asset condition assessments underlying the asset lives adopted are reasonable.
- This view is based on:
- Externally generated or externally verifiable data comparisons where available
- GHD's industry knowledge and experience
- Standard industry practice
- GHD's understanding of UED's Asset Management Planning processes that have generated the information used
- GHD's understanding of the regulatory environment in which UED operates."

On the basis of the findings of GHD's independent review, UED has re-determined its proposed reinforcement capital expenditure benchmarks, based on a 10 percentile demand forecast and a medium economic growth outlook. The revised benchmarks are presented in section 12 of this submission.

3.3 Independent Review of Wilson Cook's Report by GHD

The third review commissioned by UED is an independent analysis and critique of the Wilson Cook report. GHD was commissioned to independently analyse the basis of the opinions expressed by Wilson Cook in its report (applying the terms of reference set for Wilson Cook by the Commission). In completing this work, GHD was required to:

- clearly set out its own conclusions – and the basis of these - as to the overall robustness of Wilson Cook's opinions;
- clearly describe the approaches and methodologies it applied in reaching those conclusions;
- describe the approaches and methodologies that GHD would have applied had it been required to report to the Commission under the terms of reference given to Wilson Cook; and
- provide an opinion – and clearly set out the basis of that opinion – as to a reasonable provision for capital expenditure to be included in UED's price control for the 2006-10 regulatory period.

GHD's report[13] forms part of this submission and is attached at Appendix 3.

GHD's report concluded:

[13] *United Energy Distribution's Capital Expenditure Forecasts 2006-2010: Review of Wilson Cook Report,* Report by GHD, August 2005.

"In GHD's view there are a number of issues raised by Wilson Cook's approach that raise concerns about the extent of the recommended reductions in the projected Capital expenditure programs by the Victorian distributors in general and UED in particular.

In GHD's view:

- In commenting that the risks to be taken in the event of Capital expenditures being reduced below the projected level are a choice for the distributors' owners, Wilson Cook overlook the regulatory requirements, incentives and penalties for the maintenance of service standards. Furthermore, Wilson Cook's comment about the distributors' owners' financial position, which is referred to in the definition of reasonableness adopted in their Report, is out of Wilson Cook's scope and not a relevant matter for consideration in the current regulatory regime. This should not be taken into account in considering the distributors' future Capital expenditure projections.
- In UED's case specifically, Wilson Cook's proposed reductions in projected Capital expenditures should have explicitly considered current and projected levels of utilisation and allowed for the necessary investments to restore and maintain utilisation levels to more secure levels consistent with the required service levels, an issue which their Report recognises[14].
- Potential overlaps between the Reinforcement and Quality and Reliability Maintained categories could have been investigated directly with a view to quantifying the projected Capital expenditures affected by double counting in the categories and using that information to inform the recommended reduction.
  - In UED's case, Reinforcement Capital expenditure has been subject to a detailed planning exercise, as Wilson Cook recognises[15]. Individual elements of the program have been identified and costed and, in the case of the single program element for which the potential for overlap exists, UED has satisfied GHD that its costings have been adjusted to ensure that potential overlaps have been removed.
- The proposed adjustment to Capital expenditure for New Connections is insufficiently justified.
  - UED's data set on the historical relationship between new connections and new customers contains only two full years figures. The ratio between new connections and customers suggested by that data appears to be highly variable and, in GHD's view, UED's ability to explain the variability in the relationship or the reasons for the discrepancy between connections and customers is low. Despite this, the ratio chosen by Wilson Cook (110%) appears to have been arbitrarily chosen without regard to the available information.

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14 "It could be argued, for example, that United's sub-transmission system utilisation levels ought to be reduced – in which case capex would be justified to reduce them, after which a medium-growth demand forecasting scenario should be adopted for future planning." Wilson Cook, p. 104

15 Wilson Cook, p 107.

- In the absence of other substantial issues with the projected expenditures, Wilson Cook's justifications for its proposed reductions rely on their professional judgement to a great extent as to the potential for Capital expenditures to be deferred.
  - In the case of UED in particular, the level of asset utilisation that is implied by continuing to defer proposed network investments should have been considered in arriving at the recommended reduction.
- Wilson Cook's reasonableness test is flawed in a number of respects. These flaws seriously affect its usefulness as a check on Wilson Cook's proposed adjustments to the distributors' projected Capital expenditures.
  - First, the CPI is not the appropriate measure for adjusting the 1994 Regulated Asset Base. In UED's case, PB Associates produced a valuation for the asset base based on the asset profile, valuation costs used in modelling the replacement Capital expenditures and valuation lives[16]. The replacement cost valuation is $2,482 million[17], compared to Wilson Cook's valuation of $2,123 million. The difference between the two estimates has a material effect on the reasonableness test.
  - Secondly, use of a 2 percent rule of thumb for Capital expenditures is inappropriate for the life cycle stage of the existing networks. Wilson Cook provides no evidence of the appropriateness of this rule of thumb for distribution network assets and, in using the rule of thumb, fails to take account of the effect of aging asset base on expected capital costs.
  - Wilson Cook appears to recognise the deficiencies in the approach in the recommendation that the ESC undertake another replacement cost valuation, although Wilson Cook acknowledges the Commission's reasons for preferring its current methodology."

3.4 Independent Review of UED's IT Strategic Plan

The fourth review commissioned by UED is an independent analysis of the Company IT Strategic Plan for 2006 – 2010. This report was commissioned on the basis made in the Draft Decision where the Commission states on page 270:

> "Wilson Cook noted that the plans for IT expenditure proposed by AGLE, CitiPower, Powercor and United Energy appeared only preliminary, that detailed designs for the work had not yet been undertaken in all cases, and that there may be room for expenditure reductions or deferrals as the work proceeds.

Whilst it is true that UED did not submit detailed IT plans as part of the Company's original submission, it is worth noting that the Company's forecast is below the actual spend in the current period.

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16 PB Associates, *2006 EDPR: Replacement Capital Expenditure Modelling*, Confidential Report prepared for UED, November 2004

17 Adjusted for the inclusion of non-network assets.

UED chose not to submit its detailed plan on that basis. Accenture's report forms part of this submission. It concludes:

> "UED is broadly in line with global utilities in its split of IT spend categories, with the exception of Telecom Equipment where they are spending significantly less. The lower spend on Telecom Equipment is possibly due to their existing Telecom equipment capacity, and lower spend on wireless data applications".

3.5 Concluding Comments on Consultants' Reports

It is clear from these three independent reports that the Commission cannot reasonably rely on Wilson Cook's report on capital expenditure. To illustrate the specific weaknesses arising from Wilson Cook's report in more detail we now turn our attention in sections 4, 5 and 6 of this submission to:

- replacement capital expenditure ("reliability and quality maintained");
- reinforcement (demand-related) capital expenditure; and
- customer-initiated capital expenditure.

4 Reliability and Quality Maintained Capital Expenditure

4.1 Framework for Assessing Expenditure Requirements

Under the Essential Services Commission Act, the primary objective of the Commission is to protect the long term interests of Victorian consumers with regard to the price, quality and reliability of essential services (including services provided by the electricity distribution industry). Under the Act, the Commission is also required to have regard to relevant health, safety, environmental and social legislation in its decision-making.

The Commission's "Final Framework and Approach: Volume 2" stated that the distributors' capital expenditure requirements relating to "reliability and quality maintained" should be identified separately to "reliability and quality improved" expenditure. Under this framework established by the Commission, funding of "reliability and quality maintained" expenditure is provided specifically through the building blocks, whilst any reliability and quality improvements are to be undertaken at the DBs' discretion, and to be effectively self funded through S-factor revenues.

In terms of meeting the Commission's primary objective – to protect customers with regard to price, quality and reliability – UED interprets "reliability and quality maintained" capital expenditure to be of particular significance. Quite simply, unless UED is allowed sufficient capital expenditure to maintain existing levels of reliability and quality, the Commission is failing to meet its primary objective under the Act.

Given the importance of "reliability and quality maintained" capital expenditure in terms of maintaining the reliability of distribution services over the long term, and the very explicit "ring-fencing" that now exists between that expenditure and reliability improvement programs and expenditure, it is surprising that neither the Commission nor its consultants (Wilson Cook) have provided a full definition of the term.

In fact, Wilson Cook's failure to adequately consider the criteria of "reliability and quality maintained" much less to define the term, has allowed them to make highly arbitrary judgments regarding the level of expenditure required to meet an undefined standard. As explained in more detail below, UED's view is that the level of capital expenditure proposed in the Draft Decision is insufficient, on its own, to maintain existing reliability and quality.

4.2 Nexus Between Asset Age and Performance

In the Draft Decision, the Commission describes "reliability and quality maintained" in the following terms:

> "Capital expenditure to maintain reliability and quality relates to expenditure undertaken to replace and renew existing network assets. With time, network assets age and deteriorate and, if not replaced, may fail, resulting in a deteriorating level of service reliability and quality."(Draft Decision, page 250)".

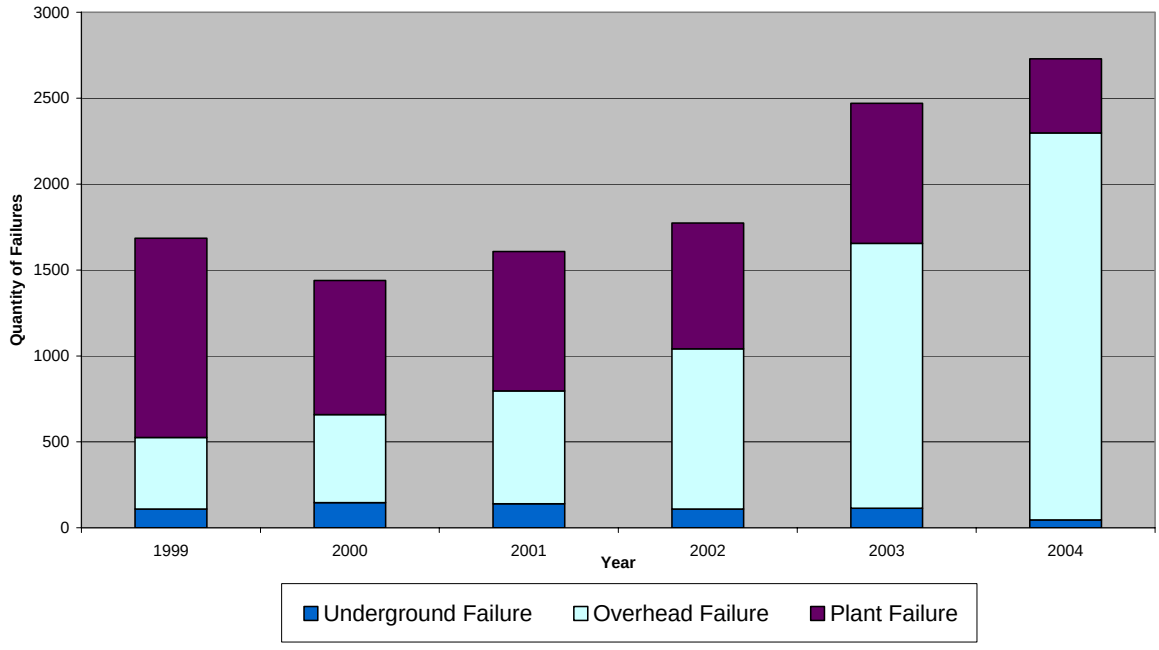
The Commission went further to make it clear that the reliability improvement programs are not being funded in the building blocks, but rather are at the DB's discretion and will need to be self-funding under the S factor scheme:

> "While, in the current regulatory period, expenditure was incorporated in the revenue requirement for distributors to improve service reliability, in the next regulatory period the focus is on retention of current average reliability levels and the cost of any improvements in average reliability is to be recovered through the service incentive mechanism." (Draft Decision, page 256.)

Application of straightforward common sense suggests that allowing network assets to age and deteriorate is not consistent with maintaining reliability and quality. If the age profile of UED's asset base is permitted to become progressively older, reliability and quality will diminish unless some countervailing measures are taken by the company to deliver improvements. (our emphasis)

In this context, it is instructive to examine the changes in the age profile of the assets, the number of asset failures and the overall reliability performance of the network over the past six years. The chart below shows the trend in the rate of asset-based failures[18] over the five years since 1999. The weighted average remaining life of the asset base over the period since 1999 has decreased slightly from 54% to around 52% today. Over that period, the total number of asset-based failures across UED's network has increased by around 65%, however UED was able to permit the age of the asset base to increase over that period because it had invested in a series of improvement programs which compensated for the aging effect.

Figure 4.1 – Asset Based Failures



[18] These are asset failures that are not attributable to external factors such as motor vehicles, third parties or extreme weather events.

The overall reliability improvement over the period from 1999 - 2004 has been achieved by the company - despite the decline in the weighted average remaining life - as a result of reliability improvement initiatives aimed at minimising the number of customers affected by such faults, as well as improving reliability in other ways. These improvement measures which were initiated by UED and developed through application of the company's own intellectual property. Such initiatives included:

- sectionalising the network so that fewer customers are affected by overhead faults;
- investment in human resource and organisational development, leading to a more flexible, efficient and responsive workforce;
- development of innovative proprietary processes that, among other things minimise the customer impact of faults; and
- investment in new management information and other systems.

Such initiatives have clearly facilitated improvements in overall network performance, in spite of the slight reduction in the weighted average remaining life of the asset base.

However, UED's ability to maintain the present high level of average performance is dependent on:

- the age profile of the asset being maintained at a level commensurate with the company's proposed "reliability and quality maintained" capital expenditure benchmark; and
- the price control for the 2006-10 regulatory period containing operating expenditure benchmarks that are consistent with those proposed in UED's PSO.

In other words, a reduction in the weighted average remaining life to levels below those targeted by UED in its PSO will, of itself, drive a deterioration in reliability performance.

The success of the reliability improvement programs over the last five years cannot justify an assumption in this price review that there are readily available improvement programs which could counter the asset aging effect of the Commission's proposal to under-fund "reliability and quality maintained" category capital expenditure. In fact the flattening out of UED's reliability profile over the last 3 years, following a 60+% reduction in SAIDI, suggests further improvement opportunities are, at best, very limited.

Even if "easy" improvement opportunities were available, it would be most inappropriate for the Commission to assume that UED could deliver such improvements at its own cost (recognising that such initiatives are intended to be self funding) in order to allow the Commission to under-fund the "reliability and quality maintained" expenditure category.

4.3 Why is Additional Reliability and Quality Maintained Capital expenditure Needed in the Future?

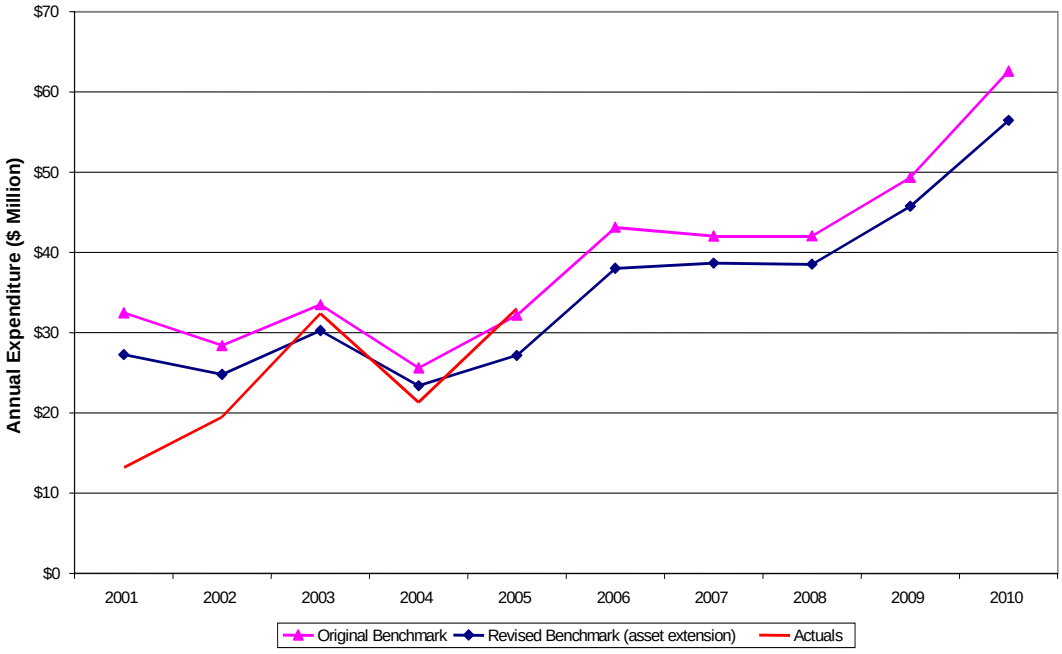
In simple terms, the profile of future expenditure requirements reflects the profile of past network development investment, which exhibit a very "lumpy" pattern over time. The notion of an "historical trend" in such expenditure is only meaningful if the period over which

the "trend" is observed encompasses the whole (40 to 50 year) life cycle of a typical network asset base.

In UED's Price-Service Offering, the company provided the following information in relation to the historical trend analysis requested by the Commission:

> "As shown in Figure 4.2 the PB Power model reasonably accurately predicts reliability and quality maintained expenditure when adjusted for actual asset profiles utilised by UED. The difference between the line labelled "Original Forecast" and "Revised Forecast (asset extension)" also shows that an increase in capital expenditure would be required had UED not adjusted for actual asset profiles that now exist as a result of its life extension and refurbishment programs."

Figure 4.2 - Asset Replacement Efficiencies



It is worth noting that the PB Model which was used by both the Commission and UED at the last Price Review indicated that there would be a build up of reliability and quality maintained expenditure in the coming period. Our PSO is consistent with this initial prediction, however UED has been able to implement initiatives and deferral programs that have reduced the forward looking benchmarks from earlier indications. The customer is ahead based on the specific initiatives implemented by UED.

Some of the significant causes of the increase in benchmark expenditure estimated by the PB Power model from the 2001-2005 regulatory period to the 2006-2010 regulatory period include:

- "life extension programs cost-effectively deferring expenditure from 2001-2005 into the next period for pole replacement as well as primary zone substation equipment such as transformers, busbar and circuit breaker replacements;

- a new stream of pole replacement expenditure starting during the next regulatory period, to replace the first of the condemned poles that were staked 20 years ago by the SECV which are now reaching the ends of their lives;
- a new stream of underground cable and LV pillar replacement starting during the next regulatory period, to replace the first of the Undergrounding Residential Development (URD) estates developed in the early 1970's such as Endeavour Hills, Dingley and Glen Waverley which are now coming to the ends of their lives; and
- increases in the replacement of supervisory cable to deliver a 10 year program, which commenced in 2003, to replace most of the aged network together with the associated aged relays." (UED's Price-Service Offering, page 95)

4.4 Wilson Cook's Assessment

As noted earlier, Wilson Cook's report does not give any consideration to the requirement for the building block benchmarks to maintain a standard of "reliability and quality maintained" and therefore Wilson Cook has no method for determining whether the proposed level of expenditure is consistent with this required level of performance. This is a very significant deficiency in the report. More specifically, in relation to replacement capital expenditure (which is the principal component of "reliability and quality maintained" expenditure), Wilson Cook make the following comments:

> "We asked United to outline its approach to determining replacement capex. We asked for and received the company's asset management plan, which outlined a sound approach to asset management practice in general and replacement policies in particular. We did not ask for, or require, asset condition assessments other than being apprised of the general condition of the network but we did ask for and receive age information describing the age profiles of particular asset categories.
>
> We asked about the impact of the proposed replacement programmes on the weighted average remaining life of the network assets and were advised that, notwithstanding the proposed investment, remaining life will continue to decline over the period from around 52% in 2005 to around 49% by 2010.
>
> We also noted that United is spending heavily in this category during the current period.
>
> We considered that the approach used to estimating replacement capex was reasonable." (Wilson Cook, page 110.)

Despite these comments, including the observation that "notwithstanding the proposed investment, remaining life will continue to decline over the period from around 52% in 2005 to around 49% by 2010", Wilson Cook proposed a reduction in UED's replacement capital expenditure of $71.8m over the forthcoming regulatory period. (Wilson Cook, table 9.8, page 116).

UED has previously written to the Commission noting that the positive words in Wilson Cook's report are not consistent with its negative findings[19]. Notwithstanding this

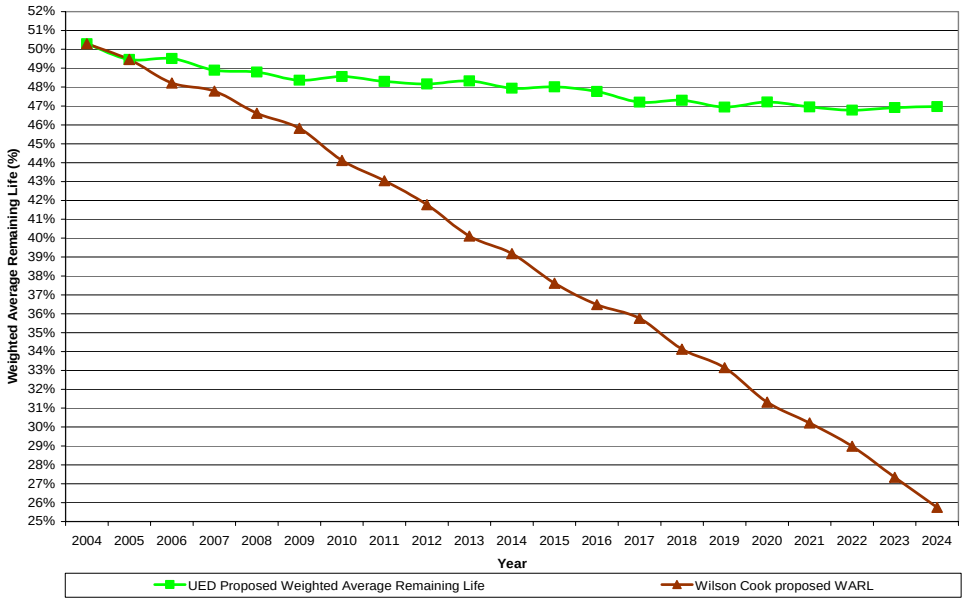
[19] A copy of UED's letter to Marianne Lourey, dated 7th July 2005 is attached.

observation, it is important to note that UED's proposed replacement expenditure is consistent with a slightly declining asset remaining life – reflecting the company's informed engineering judgement that the average age of the asset base can be allowed to increase slightly without materially compromising reliability and quality. In contrast, however, Wilson Cook do not provide any assessment of how its proposed level of capital expenditure will affect the average age of the asset base, and therefore the extent to which that proposed level of expenditure will compromise reliability and quality. Furthermore, the Commission has adopted Wilson Cook's proposal without itself addressing this issue.

4.5 Impact of Providing Inadequate "Reliability and Quality Maintained" Capital Benchmarks

To illustrate the foregoing point further, UED has examined the impact of Wilson Cook's replacement capital expenditure on the average age of its asset base. The results of UED's analysis is shown in the Figure 4.3.

Figure 4.3 – Weighted Average Remaining Life



The graph shows the substantial decline in UED's remaining asset life if Wilson Cook's expenditure proposal is adopted in the forthcoming regulatory period and in future periods. In effect, the graph shows that whilst UED's proposed replacement capital expenditure is consistent with maintaining the weighted average remaining life of the network – and therefore maintaining reliability - Wilson Cook's proposal is consistent with a substantial deterioration in the age – and hence reliability - of the assets.

It is apparent from the Wilson Cook report that the consultants have not considered whether the deterioration in asset age (and condition) that would flow from the report's recommendations is consistent with the Commission's objective that reliability and quality should be maintained. The Commission has failed to take account of this important matter in its Draft Decision, with the result that it is proposing a level of capital expenditure which is

bound to fall short of that required to facilitate achievement of its statutory objective of protecting customers with regard to price, quality and reliability.

4.6 Concluding Remarks

In summary, UED's concern is that a methodological weakness in the Wilson Cook report has led it and the Commission to adopt replacement capital expenditure benchmarks that are inconsistent with:

- the Commission's statutory objectives; and
- the framework established by the Commission itself, which funds "reliability and quality maintained" through the building blocks and leaves any reliability and quality improvement programs or capital expenditure to be self-funding at the DB's discretion.

In this submission, UED has explained the linkage between the maintenance of the asset age profile (weighted average remaining life) and the overall reliability of the assets– a fundamental linkage recognised by the Commission itself on page 250 of the Draft Decision. UED's various submissions (including the independent expert reports that form part of this submission) also clearly demonstrate that the "reliability and quality maintained" capital expenditure benchmarks proposed by the company are consistent with maintaining the asset age profile at a level which will facilitate the maintenance of overall network reliability. The capital expenditure benchmarks proposed by the company are therefore consistent with those required under the framework established by the Commission itself.

The Commission should understand that if it adopts capital expenditure benchmarks below those which facilitate the maintenance of overall network reliability then the Commission will, in effect, be abandoning the framework that it established for this review. Were this to take place, the Commission would also need to re-establish many key parameters of its price review framework to allow for the change to this fundamental assumption. This would include:

- redetermining the company's operating expenditure benchmarks;
- revisiting the reliability targets that should be applied for performance monitoring purposes and in the service incentive mechanism;
- redetermining the GSL thresholds and provisions made for GSL payments; and
- carefully considering the company's ability to meet statutory health and safety, and environmental compliance obligations.

Wilson Cook has arbitrarily reduced capital expenditure without analysing its deleterious impact on reliability, safety or environmental outcomes. In fact, in discussions with Wilson Cook on 1 July 2005 (at which representatives of the Commission were present) the consultant commented that: "If we were in a war situation you wouldn't be spending anything". This comment illustrates that the consultant is taking a short-term view to trim capital expenditure without any regard to the Commission's objectives or the long-term impact on customers.

Quite simply, without any substantive supporting modelling or analysis, the judgments made by Wilson Cook are ill-considered, contrary to the objectives of the regulatory framework,

and cannot reasonably be considered to be consistent with maintaining the long term reliability of the network. The Commission should revert to proper detailed analysis in its Final Decision, which UED is confident will demonstrate the necessity for the Commission to adopt reliability and quality maintained capital expenditure benchmarks that are consistent with those proposed by the company.

5 Reinforcements Demand (Demand-Related Capital Expenditure)

On 3 August 2005, UED wrote to the Commission providing a further detailed explanation of the company's approach to determining benchmarks for network reinforcement capital expenditure. A copy of the letter is attached in this submission.

This section of UED's submission demonstrates that the expenditure benchmarks proposed by Wilson Cook will result in a substantial increase in UED's already high asset utilisation, and as consequence of this, consumers will be exposed to a substantial increase in load at risk. Such outcomes would clearly not be in the long-term interests of consumers, and would therefore not be consistent with the achievement by the Commission of its primary statutory objective.

To demonstrate this, UED's submission:

- sets out a map showing the already high level of asset utilisation across the company's network;
- provides data showing the efficient increase in utilisation achieved by UED over the period from 1999 to the present;
- provides data showing that UED's proposed expenditure benchmarks aim to maintain the present high level of asset utilisation, whilst also efficiently managing the exposure to load at risk; and
- shows that applying Wilson Cook's proposed expenditure benchmarks would expose UED's customers to an unacceptably high level of load at risk.

Figure 5.1 below shows the existing high asset utilisation across UED's network.

Figure 5.1 – Utilisation Across UED's Network

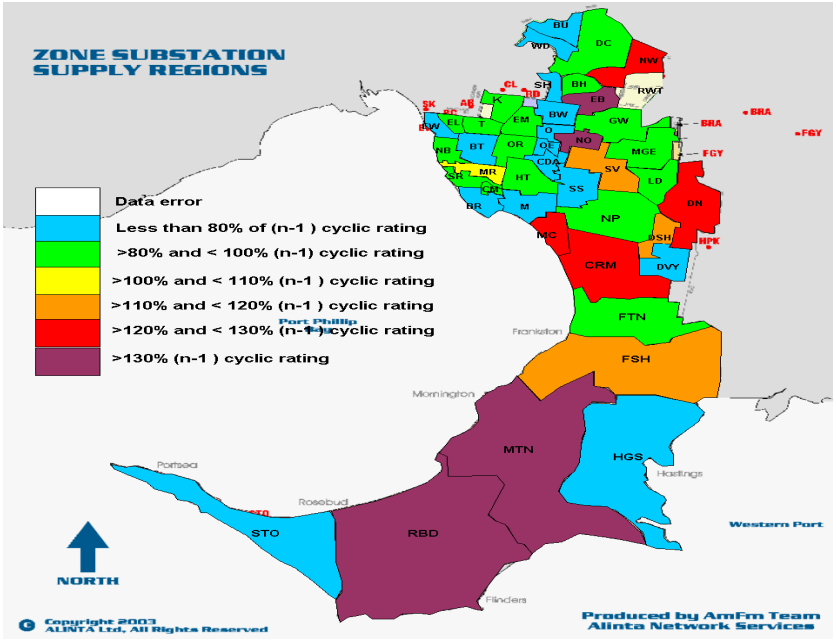
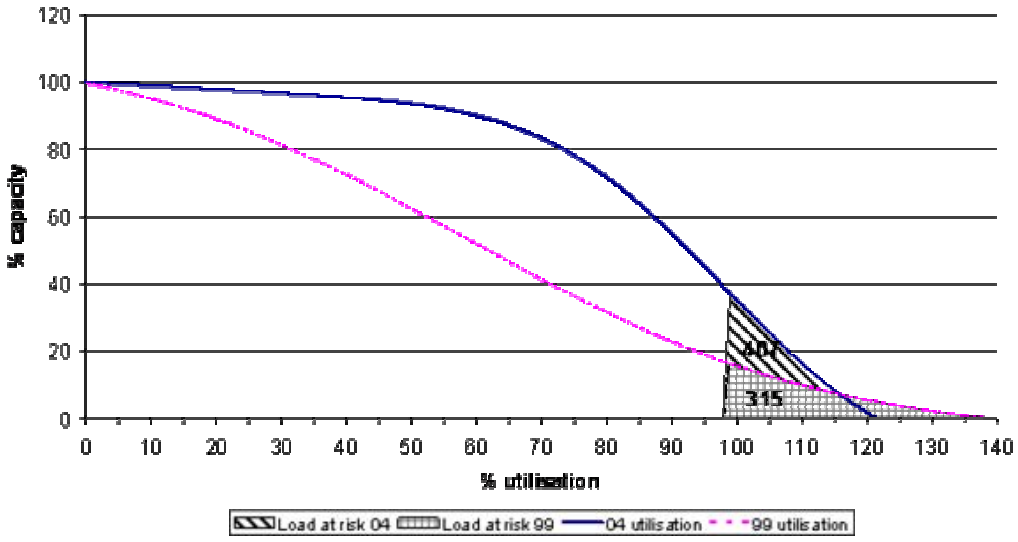


Figure 5.2 below shows the level of network utilisation in 1999 and 2004. These data indicate clearly the substantial increase in utilisation and efficiency achieved by UED over the 2001 - 2005 regulatory period. Figure 5.2 also shows that the load at risk over the period has increased by some 30%. UED has accepted the recommendation of GHD, its consultant, to base its demand forecast for 2006-2010 period on medium economic growth. In doing so however, UED is concerned about the high utilisation and is proposing to undertake approximately $10 million worth of investment to mitigate that load at risk at the sub-transmission and zone substation level. With this additional investment, the utilisation at sub-transmission and zone substation level will be reduced slightly, with the rest of the system very much maintained at the current high utilisation level.

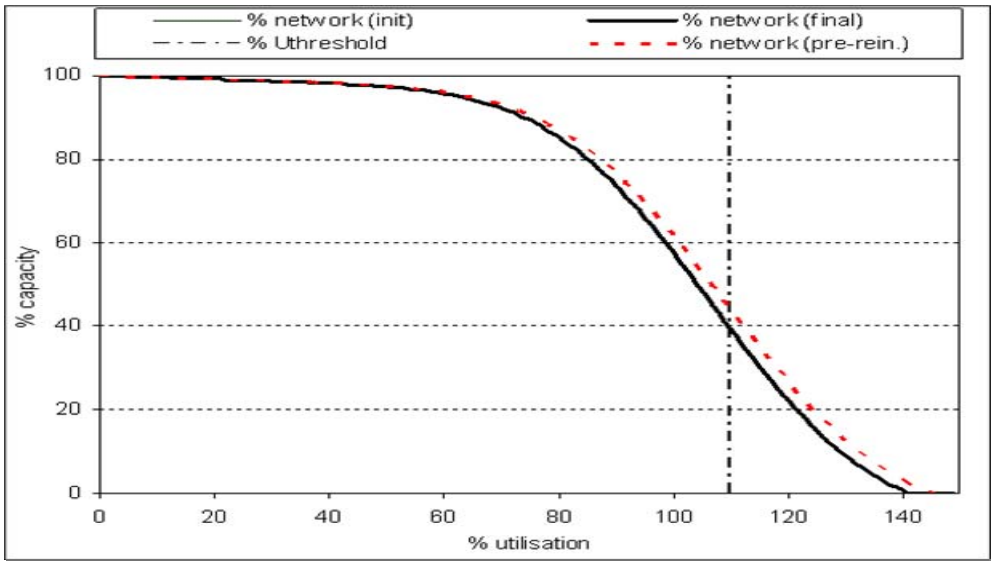
Figure 5.2 – 99 v 04 Asset Utilisation



It is emphasised that efficient management of the load at exposure under the higher asset utilisation levels successfully achieved by UED is contingent upon UED's price control containing demand-related capital expenditure benchmarks that are consistent with those proposed by the company. UED is confident of simultaneously maintaining the present levels of utilisation whilst delivering reliable network services over the forthcoming regulatory period, provided the Final Decision adopts the company's proposed expenditure benchmarks.

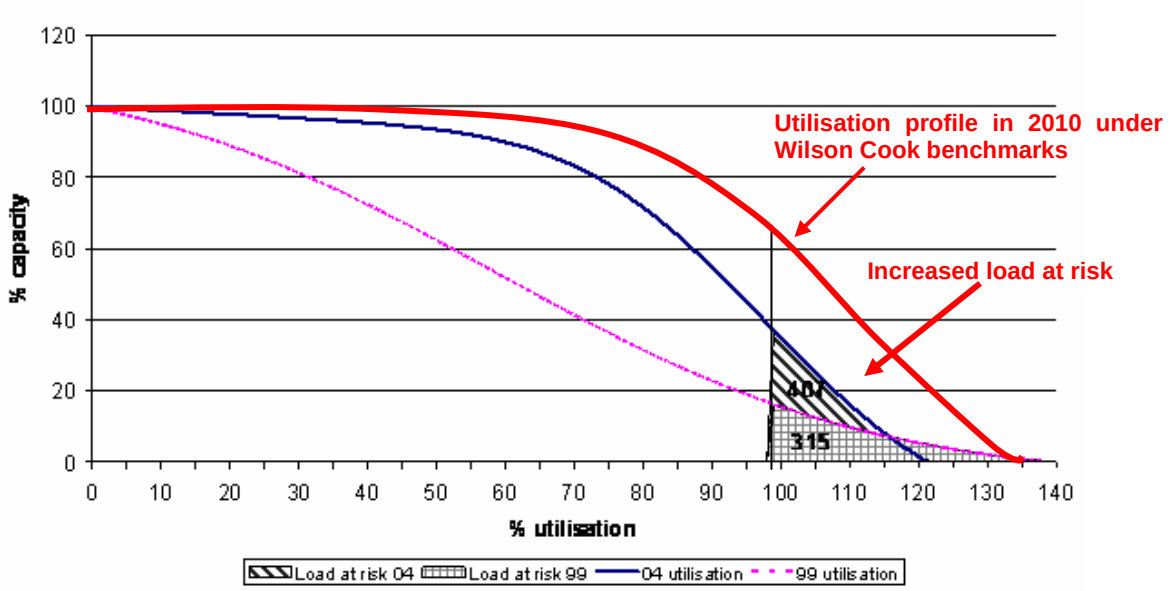
Figure 5.3 below compares the present actual level of network utilisation with the level of utilisation that PB's model predicts would be delivered over the 2006-10 regulatory period as a result of investing UED's proposed demand-related capital expenditure benchmarks. This Figure demonstrates that UED's expenditure benchmarks for the coming period represent the efficient level of investment required to maintain the presently high level of utilisation and efficiency – to the clear benefit of consumers.

Figure 5.3 - 1999 and 2004 Actual Utilisation Compared with Estimated 2010 Utilisation under Wilson Cook's Proposed Expenditure Benchmarks



By contrast, Wilson Cook and the Commission propose a 30% reduction in the demand-related capital expenditure benchmark. As shown in Figure 5.4 below, such a reduction would have a profound impact on asset utilisation over the period, resulting in a substantial increase in load at risk.

Figure 5.4 - 1999 and 2004 Actual Utilisation Compared with Estimated 2010 Utilisation under Wilson Cook's Proposed Expenditure Benchmarks



As noted in section 3.2, the independent review undertaken by GHD concluded that UED should use the medium growth scenario as the basis for its forecasts, in preference to the high growth scenario. On the basis of GHD's conclusions, UED has revised its expenditure benchmark for Reinforcements Demand capital based on a medium economic growth scenario[20]. Consistent with its application of a risk-based approach to capacity augmentation, UED continues to apply a demand forecast based on 10th percentile weather conditions.[21]

UED's revised expenditure benchmarks for Reinforcement Demand (re-calculated using the revised peak demand forecast) are set out in the table in section 12.

This submission (including the accompanying independent experts' reports) clearly demonstrates that UED proposes a level of expenditure consistent with maintaining the high levels of utilisation already achieved by UED, whilst containing load at risk to economically efficient levels. These outcomes are consistent with maximising net benefits to consumers over the long run, and are therefore consistent with the achievement of the Commission's primary statutory objective. In sharp contrast, the Wilson Cook report - and therefore the Draft Decision – have not considered the implications of the proposed expenditure benchmark reductions on the company's ability to maintain acceptable levels of asset utilisation and to provide adequate reliability.

These matters must be carefully considered by the Commission in its Final Decision. In light of the information set out herein, UED urges the Commission to adopt the company's revised expenditure benchmarks (set out in section 12) in its Final Decision.

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20 The adoption of GHD's recommendation regarding the use of the medium economic growth scenario also affects UED's benchmark for Customer Initiated Capital. Further details are discussed in section 6.

21 Maximum demand is expected to grow, on average, at 2.89% per annum from 2005-10 under a tenth percentile summer, medium economic growth scenario.

6 Customer Initiated Capital

In UED's PSO, capital expenditure benchmarks for new customer connections included all works relating to:

- the connection of new customers; as well as
- existing customers requesting additional loads.

This category of capital expenditure was referred to as 'customer initiated capital' in Section 7.5 of the PSO. To avoid confusion, the term 'new customer connection capital expenditure' is used throughout this submission, and it has the same meaning as 'customer initiated capital'.

As explained in the PSO, UED used the PB Associates Growth Model to assist in establishing expenditure benchmarks for new customer connection capital expenditure. (The same model is used to estimate the reinforcement capital expenditure requirements.)

The PB Associates Growth Model predicts customer connection capital expenditure based upon the growth in maximum demand due to the new connections and the network capacity required to meet this demand; thus the model is built on an assumption that kVA demand is the underlying driver of new customer connection capital expenditure. Accordingly, the model does not rely in any way on forecasts of physical customer connection numbers to predict capital expenditure requirements. This, in turn means that the model correctly predicts capital expenditure requirements associated with other customer-initiated connection projects resulting from requirement to increase demand (e.g. increases in capacity of existing customers at their request).

The approach applied by Wilson Cook and the Commission to estimate customer initiated capital is based on customer connections and the average unit cost for connecting these customers to the network (page 242 of the Draft Decision). In the Draft Decision, the number of new customer connections is arbitrarily taken to be 1.1 times of the net growth in customer number.

UED believes that Wilson Cook's approach is incorrect because:

- It relies on the assumption of a consistent ratio of customer connections to customer numbers, which has not been observed from historical data (a fact recognised by Wilson Cook on page 109 of its report, which states: "the data provided by United does not exhibit a consistent pattern"). In fact, the data submitted by UED demonstrates that the ratio varies widely, depending on the specific customer installations which occur in any given year. For instance, a multi-dwelling development will give a ratio of 2 or more, and the ratio will not pick up any customer number change when a new connection is established to accommodate an existing customer's load increase.
- Wilson Cook's approach relies on an average connection cost being representative across all of the connections made. UED's historical data indicates that the cost of customer connection can vary from $500,000 (for a new high voltage feeder) to $52,000 (for a new distribution substation) to $1,100 (for a new low voltage connection).

This wide variation in connection costs is attributable to the different classes of customer connections, with large commercial, industrial and medium density housing connections (which require much larger amounts of capacity) incurring much higher connection costs, compared with ordinary residential connections. This fact highlights the inherent advantage of the PB Associates Growth Model. The model recognises (correctly) that demand (kVA) growth is the true driver of new customer connection capital expenditure, so the model is likely to forecast more accurately connection costs for commercial, industrial and medium density housing projects, as well as residential customer connections.

The following illustrates the inherent errors in the approach applied by Wilson Cook:

- One commercial customer connection can be worth as much as 460 residential customer connections. Although an increase of one large commercial customer connection in a year can result in a significant increase in the connection capital expenditure requirement, Wilson Cook's approach will fail to predict that increase. The consequential error in the capital expenditure benchmarks derived using Wilson Cook's approach could easily amount to many hundreds of thousands of dollars per year.
- Historically, the total annual capital expenditure required for connecting commercial and industrial customers is, on average, 3.3 times the capital expenditure spent in connecting residential customers. This observation highlights the importance of using a model that applies kVA demand as the cost driver.

For the reasons set out above, UED believes the PB Associates Growth Model is inherently more accurate in predicting new customer connection capital expenditure than a model based on customer number growth.

UED has also attempted to derive a bottom-up estimate of new customer connection capital expenditure based on customer number growth instead of kVA demand growth. However, it was not possible to establish a robust alternative estimate using this approach because of the difficulty associated with forecasting accurately the number of customer connections in the large commercial, industrial and medium density housing segments. As already noted, connection costs in these segments may be orders of magnitude higher than residential connections, so any inaccuracy in the forecast of customer connection numbers in aggregate or by customer segment is likely to result in significant errors in the capital expenditure estimate.

For the reasons explained in section 5 above, the PB demand model was re-run, applying the medium economic growth scenario. The revised customer initiated capital benchmark is set out in Table 6.1 below.

Table 6.1 – Customer Initiated Capital Expenditure Benchmark (Real $M at June 2004)

2006	2007	2008	2009	2020	Total (2006-10)
21.6	21.3	18.8	18.5	20.1	100.2

To sum up:

- UED has demonstrated that kVA demand growth is the underlying driver of new customer connection capital expenditure, and therefore, predictions of new customer connection capital expenditure should be based on forecasts of kVA demand growth and not customer number or new customer connection forecasts.
- In addition, UED has noted that new connection capital expenditure per customer varies widely depending on the demand characteristics of each customer. As a result of this fact, "bottom-up" estimates of new customer connection capital expenditure derived from customer numbers are prone to significant error.
- Wilson Cook's proposed benchmarks for new customer connection capital expenditure are incorrect because:
  - they are derived from an approach that does not apply the correct cost driver; and
  - they are based on incorrect and unsubstantiated assumptions about the relationship between customer connections and customer numbers; and
  - they are based on an incorrect assumption that a robust single estimate of the average capital expenditure per new connection for all customers can be derived and then applied to produce a robust estimate of total new customer connection capital expenditure.
- The Final Decision should adopt the expenditure benchmarks proposed by UED, as set out in Table 6.1, and in section 12 of this submission.

7 Reliability and Quality Improvements

In its response to the Position Paper, UED noted that in its PSO, the company included $1.05 million per year to improve power quality such as voltage delivery and harmonics so that the company better compiles with the Distribution Code at the point of power quality monitoring. UED has identified an increasing trend of harmonics voltages caused by the increasing amount of non-linear load (such as that attributable to computers) installed by customers. Future additional expenditure will be required for harmonics mitigation, to ensure that the company's compliance with the relevant Distribution Code requirements are maintained.

UED interprets the Distribution Code's provisions relating to point of power quality monitoring as not requiring continuous perfect compliance at every customer's premises. UED would welcome the Commission's advice if the company has misinterpreted this particular provision. UED's proposed benchmark is consistent with the company achieving a level of compliance that is consistent with a reasonable interpretation of the required standard. In this regard, UED notes that there is likely to be significant additional expenditure required if the company were to be required to ensure that compliance with the Distribution Code applies to every customer's premises all the time. This additional expenditure is highly unlikely to be economic. UED has therefore not included in its proposed benchmarks an estimate of the expenditure required for additional monitoring down to individual customer level.

UED considers that customers with equipment that is sensitive to supply quality (even though the quality meets the minimum standards in the Distribution Code) should install mitigating equipment at their point of supply or within their works. The company's experience is that this would represent the most cost effective solution.

On this basis, UED confirms that the $1.05 million per year power quality expenditure benchmark is required to ensure the company improves its compliance with Distribution Code requirements[22] for voltage delivery at the point of monitoring, such as steady state voltage, voltage unbalance and harmonics.

[22] Consistent with page 256 of the Draft Decision.

8 Environmental, Safety and Legal

8.1 Electrical Safety Management Scheme

UED is lodging a separate submission on electrical safety-related capital and operating expenditure benchmarks. For completeness however, the table set out in section 12 of this submission shows UED's revised proposed capital expenditure benchmark for electrical safety management.

8.2 Undergrounding and Technology Initiatives

UED is disappointed that the Commission has decided not to include allowances for the company's proposed undergrounding and technology initiatives, and is proposing an environment that is not conducive to such initiatives. As explained in the company's PSO, these initiatives would have delivered substantial benefits to consumers in the immediate future and over the longer term.

UED believes that an electricity distributor - as the provider of a very important service to the community - should not be inhibited from taking on a position of corporate responsibility and initiating programs that look to meet the future wants and needs of the community.

As UED has previously pointed out to the Commission:

- Undergrounding of electricity infrastructure has strong and growing community support, particularly where the undergrounding leads to improvements in public and environmental amenity. At the rate at which UED has proposed to invest in undergrounding over the next 5 years, it would take well in excess of 500 years to underground the entire network. The company would therefore accept criticism that its proposal is "too low and too slow", but UED cannot accept the Commission's concerns that the company is asking to do too much undergrounding.
- UED's proposal for a technology fund revolves around a $5 million per year fund which would facilitate research and development in areas of community priority including:
  - demand management;
  - quality of supply;
  - enhance technical development of distribution networks (to 66kv);
  - satellite fault based technology; and
  - university and industry funding.

UED's PSO stated clearly that the prioritisation and allocation of funds under the program would be managed by a community/stakeholder based committee.

The community can benefit from such programs in a regime where the businesses have fair prices and reasonable cashflows which incorporate sufficient allowance for the programs, and an environment that fosters the innovation and customer/community focus needed to

deliver such programs. Unfortunately the Commission's narrowly-focused regulatory approach does not accommodate such a vision.

As stated earlier, UED proposed the Technology Fund and undergrounding program in its initial October 2004 submission, and discussed the initiatives further in its presentations to the public and to the Commissioners in November 2004. At that time the initiatives were put forward as high level proposals. UED offered to work with Commission staff and other stakeholders in 2005 to flesh the initiatives out further, with a view to having a detailed proposal prepared in time for the final decision in September 2005.

Unfortunately, the Commission sent a very clear message of rejection of UED's initiatives in each of its Issues Paper (December 2004), Position Paper (March 2005) and Draft Decision (June 2005). Having experienced similar rejection from the Commission's predecessor (the ORG) in the 2000 Price Review, and being aware of the substantial workload ahead of the company in responding to the hundreds of issues raised by the Commission in its forensic price review process, UED reluctantly put the initiatives on the back burner.

However, the company is still keen to proceed with its proposed initiatives, and to work with the Commission and customer groups to develop the initiatives in more detail over the coming months. Successful development of these initiatives is contingent on the Commission changing its mind and adopting an approach focused on delivering long term benefit for customers – through initiatives of the type proposed by UED - instead of focusing on delivering short term price reductions at the expense of long term consumer benefits.

8.3 Operational

The Draft Decision proposes a total allowance of $14.2 million for "operational" capital expenditure (within the Environmental, Safety and Legal category) for the 2006-10 regulatory period. This amount is consistent with the benchmark proposed in UED's PSO, and relates to capital expenditure associated with:

- noise mitigation;
- EMF management;
- bushfire mitigation; and
- protection of critical infrastructure.

The draft decision is consistent with UED's proposals as summaries in Table 12.1. UED therefore proposes to accept the expenditure benchmark for "operational" capital expenditure (within the Environmental, Safety and Legal category) as set out in the draft decision.

9 Non-network General Assets – Information Technology

During UED's meeting with the Commission of 1 July 2005, the Commission stated that it considered that insufficient information had been provided by UED to substantiate its information technology (IT) capital expenditure benchmark. In response, UED explained that in the case of IT – which has a life cycle of 5 years or less - UED had, in accordance with the Commission's framework, used recent historic levels of expenditure as a guide to future requirements. On this basis, the company's PSO proposed a benchmark for IT capital expenditure that is consistent with actual levels of investment undertaken by the company over the 2001-2005 regulatory period.

In response to comments made by the Commission at the meeting of 1 July 2005, UED undertook to provide further information – namely, detailed IT business plans – to substantiate the proposed benchmarks for the 2006-10 regulatory period. Accordingly, UED has provided to the Commission under separate cover and on a confidential basis a copy of its *Information Services Strategic Plan 2005-2010 (Excluding Replacement of Customer Information System)*.

That document represents the Information Services Strategic Plan for UED. The document provides a detailed overview of the business objectives, drivers, and influences that shape the company's IT requirements. It also sets out details of specific IT initiatives, descriptions of IT projects and details of the IT capital expenditure budget for the period to 2010. UED is confident that the document provides more than sufficient information to substantiate the company's proposed IT capital expenditure benchmarks for the forthcoming regulatory period.

Although UED did not submit detailed IT plans as part of the its original submission, it is worth noting that the company's proposed benchmark is below the actual expenditure for the 2001-2006 regulatory period. On this basis, having regard to the Commission's framework, UED chose not to submit its detailed IT strategic plan at the time of lodging its Price-Service Offering.

UED commissioned Accenture to undertake an independent review of UED's IT strategic plan. Accenture's report forms part of this submission, and concludes:

> "UED is broadly in line with global utilities in its split of IT spend categories, with the exception of Telecom Equipment where they are spending significantly less. The lower spend on Telecom Equipment is possibly due to their existing Telecom equipment capacity, and lower spend on wireless data applications".

10 Non-network General Assets – Other

The Draft Decision proposes a total allowance of $14.7 million for capital expenditure in this category for the 2006-10 regulatory period. This amount is consistent with the benchmark proposed in UED's PSO, after allowing for the labour cost escalation adjustment provided in the Draft Decision. This includes:

- trucks and other vehicles;
- tools and equipment; and
- property and depot modifications.

11 Reconciliation of Future Benchmarks and Historic Expenditure

In the preceding sections of this submission UED has identified specific weaknesses arising from Wilson Cook's report in relation to:

- replacement capital expenditure ("reliability and quality maintained");
- reinforcement (demand-related) capital expenditure; and
- customer-initiated capital expenditure.

Those sections demonstrate why the Commission cannot rely on Wilson Cook's report.

The preceding sections of the submission have also set out other information to substantiate UED's response to the Draft Decision.

In addition, the preceding sections have detailed the reasons why UED considers the "trend analysis" approach is not a reliable method for establishing – or even verifying - capital benchmarks. Nonetheless, the company recognises that the Commission is very interested in this approach, and as such UED has attempted to provide the Commission, in this section, with a top-down reconciliation of the proposed capital expenditure benchmarks and recent actual expenditure.

In doing so, UED points out that in many cases it has been very difficult to provide a simple top down analysis, to test what is a detailed bottom-up program of hundreds, if not thousands of projects, influenced by a very complex set of drivers. This practical difficulty explains why engineering consultants such as PB have developed models and other decision support tools to assist energy distribution business world wide in conducting their capital expenditure planning.

UED believes it has been reasonably successful in demonstrating that its bottom-up benchmarks can be supported by relatively simple top down analysis. The company conducted a top-down analysis for the key capital expenditure categories, but found it totally impractical for the minor capital expenditure categories such as "other" and the like. In some cases, the company has not been successful in achieving its objective of providing simple analysis. Again, this difficulty is unavoidable, given the complexity of cost drivers and the changes in these over time.

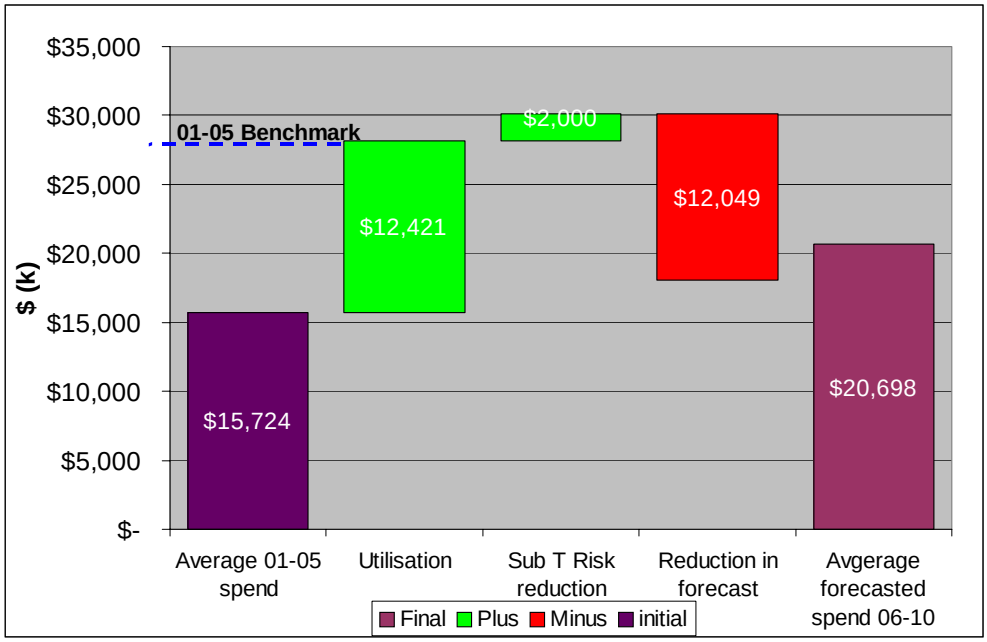
Having regard to the foregoing discussion, this section of the submission provides further substantiation of UED's capital expenditure benchmarks by providing a reconciliation of historic expenditure to future capital expenditure requirements. The capital expenditure line items analysed in this section are:

- Reinforcements Demand
- Customer Initiated Capital
- Reliability & Quality Maintained
- Reliability & Quality Improvements
- Non-Network General Assets – IT

11.1 Reinforcements Demand

Figure 11.1 below shows the relationship between the average expenditure over the 2001-2005 regulatory period and the expenditure benchmark for the 2006 -2010 period.

Figure 11.1 – Demand Capital (Real $M as at June 2004)



The following notes provide an explanation of the data presented in above.

Utilisation: Utilization is calculated as the difference between the reinforcement capital expenditure output of the 1999 PB Growth model (obtained by re-running the model to incorporate actual growth in 2001-2005 and medium 10% POE forecast for 2006-2010) and the actual expenditure in the 2001-2005 period. The amount shown represents the savings achieved by increasing asset utilization through efficient deferral using probabilistic planning.

It also represents released capacity using relatively low cost reinforcement at local levels such as distribution capacitors and minor line upgrades, which occurred in the 2001 - 2005 period. Note the options for these efficiencies are no longer available in the forthcoming 2006 - 2010 period.

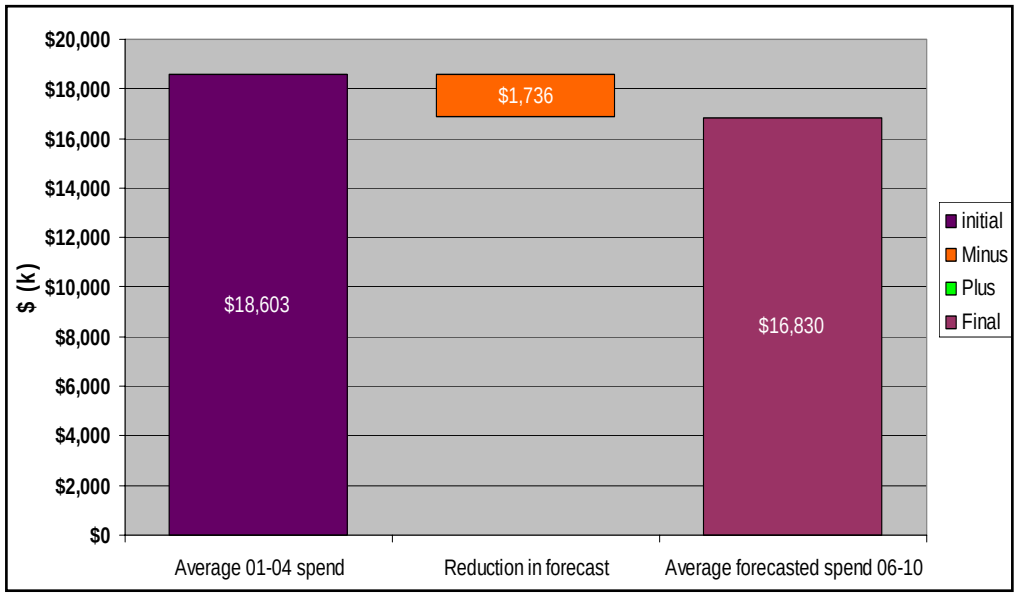
Sub T risk: The reinforcement capital expenditure requirement has been revised down using a medium economic growth scenario (instead of the high growth scenario used in the PSO). Due to the high utilization of the sub-transmission assets and the potential effect of sub-transmission loss events on large number of customers, UED's revised benchmarks incorporate additional expenditure to reduce sub-transmission asset utilization, in line with the comments made by Wilson Cook on page 104 of the Wilson Cook report.

Reduction in forecast: Reduction in forecast represents the lower demand growth rate forecast for the 2006-2010 period compared with the actual growth rate for the 2001-2005 period.

11.2 Customer Initiated Capital

Section 6 of this submission explains the basis of UED's Customer Initiated Capital expenditure benchmarks, with reference to recent actual levels of expenditure.

Figure 11.2 – Customer Initiated Capital – PB Power



The decrease in CIC for the 2006 - 2010 period (compared with 2001 - 2005) is due to the reduction in demand forecast.

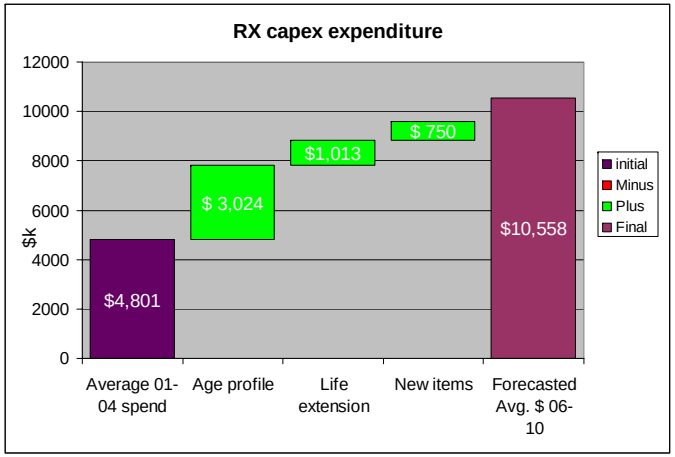
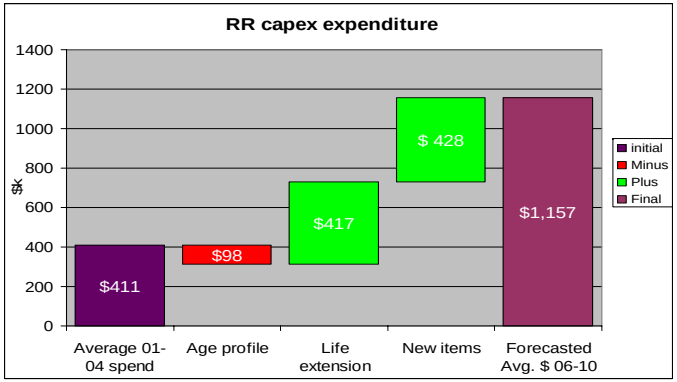
11.3 Reliability & Quality Maintained

As already noted, UED conducted a top-down analysis for each of the capital expenditure categories, but encountered some challenges in providing a simple top-down reconciliation between recent actual expenditure and future benchmarks. As noted, this difficulty is unavoidable, given the complexity of cost drivers and the changes in these over time. UED has provided a reconciliation for each main asset category.

The charts and accompanying notes on the following pages provide an explanation of the relationship between the future capital expenditure benchmarks and recent historic levels of expenditure, for each main asset category. The following notes provide an explanation of the data presented in the charts.

Dollar amounts:	All dollar amounts shown represent average annual figures for the relevant period, expressed in real dollars at June 2004.
Age profiles:	The age profile represents the difference in the number of assets due for replacement in 01-05 period vs. 06-10 period from the original 99 submission. This ensure that the impact of any life extension programs or economic asset deferrals over the 2001-2005 period can be assessed independently of the changes in assets age profile.
Life Extensions:	The life extension represents the change between the 99 age histograms and 04 histograms for assets, due for replacement, in the 06-10 period. It indicates the amount of economic deferral from the 2001-2005 period and now falling into the 2006-10 period. This category creates a series of economic deferrals for each period following the 2006-10 period
New Items:	The new items category captures items either not identified in the last EDPR or newly predicted defective assets requiring replacement before their standard life expectancy.
Higher Replacement:	This is represented in 2 of the above categories RH and RU. This is the case as we have overspent in the 01-05 period in comparison to what was forecast in 1999, due to bringing forward of “bad actor” assets caused by increasing asset failure forecasts used in the 1999 model. This has meant UED has had to bring capital expenditure forward from the 2006-2010 period. This causes a “bring forward” cascading effect and consequently a reduction in capital expenditure for the 2006-10 period.

Capital Expenditure

		Average 2001-2004	Average 2006-2010	Comments	
RX	Pole Top Structures	$4,801	$10,558	The age profile of these assets is increasing over the next 5 years, due to the rapid expansion of the network (and high levels of investment) in the mid to late 1950s. UED has extended the life of the assets due for replacement in the 2001-2005 period therefore shifting expenditure to the 2006-10 period. New items which have been identified for "rogue asset" replacement include steel crossarm bird covers and certain brands of insulators.	
RR	Pole Staking	$411	$1,157	The age profile of these assets is decreasing over the next 5 years. UED has extended the life of the assets due for staking in the 2001-2005 period, through bioguards and pole saver rods. A new line has been identified, in the 2006-10 period, consisting of a better staking/ replacement ratio, meaning a higher ratio of poles are to be staked in 2006-10 period.	

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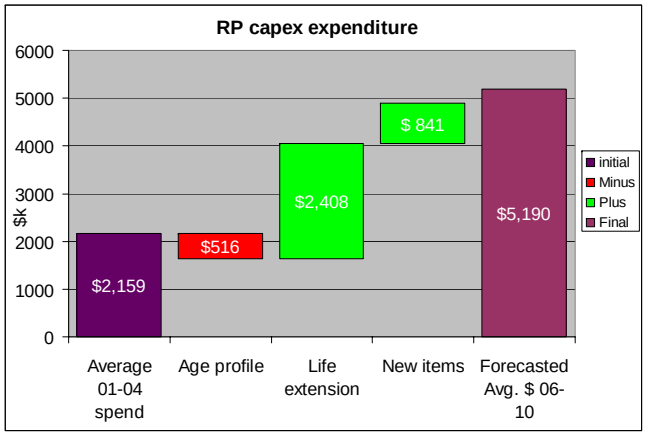
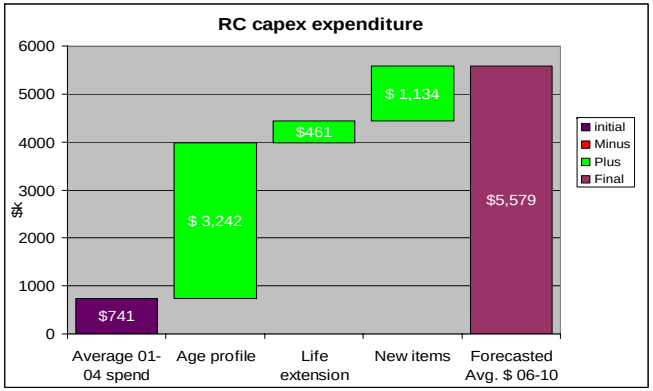
		Average 2001-2004	Average 2006-2010	Comments	
RP	Pole Replacement	$2,159	$5,190	The age profile of these assets is decreasing over the next 5 years. UED has extended the life of the poles due for replacement, which were not suitable for staking, in the 2001-2005 period through bioguards and pole saver rods. New items have been identified for asset replacement consisting of poles staked in the 1980s and forecasted to last 20 years, which are due in the 2006-10 period.	
RC	ST Comms/ Protection System	$741	$5,579	The age profile of the assets is increasing over the next 5 years. Life extension has taken place for supervisory cable in order to align the replacement of these assets with aged relay replacements. Newer technology has now meant that a new line of asset replacement must be brought forward. For instance, replacing aged supervisory cable requires protection relays to be replaced.	

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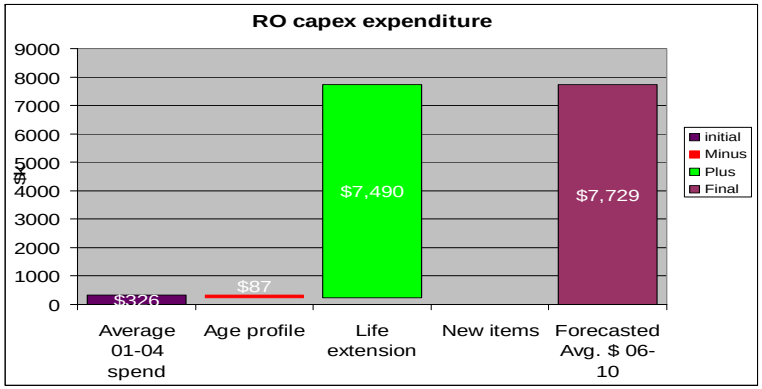
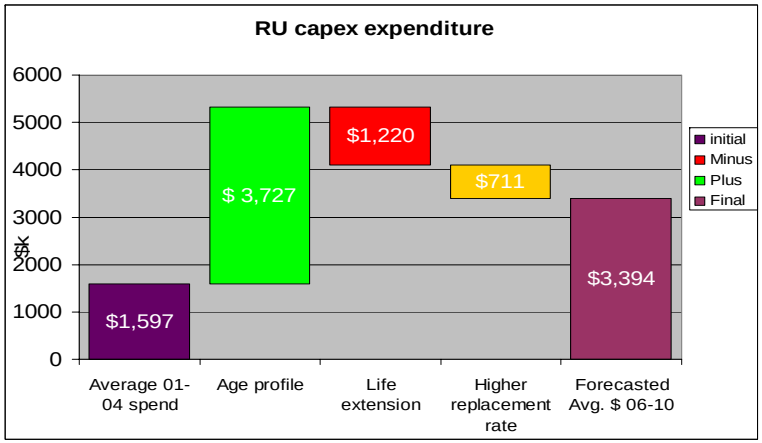
Capital Expenditure

		Average 2001-2004	Average 2006-2010	Comments	
RO	Network O/H Replacement	$326	$7,729	The age profile of these assets is increasing over the next 5 years. UED has extended the life of the conductor due for replacement in the 2001-2005 period, into the 2006-10 period by replacing faulty connectors, and thermal survey program. Condition assessments have been undertaken by independent material scientists, to facilitate life extension.	
RU	Network U/G Cable Replacement	$1,597	$3,394	A new stream of underground cable and LV pillar replacement will commence in the next regulatory period, to replace the first Underground Residential Developments that were developed in the 1970s, such as Endeavour Hills, Glen Waverley and Dingley. The life of HV XLPE cables has been reduced, since the previous submission, based on observed failure rates and condition monitoring. Work previously scheduled for the 2006-10 period has been brought forward into the 2001-2005 period due to increased failure rates.	

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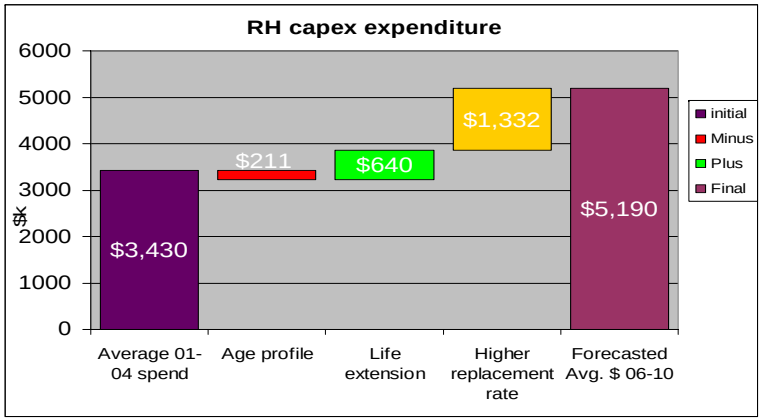
		Average 2001-2004	Average 2006-2010	Comments	
RH	Network HV Install Replacement	$3,430	$5,190	The age profile is slightly reducing. Life extension programs through thermal surveys and overhead switch refurbishment have been carried out in the 2005-10 period . Work previously scheduled for the 2011-2016 period has been brought forward into the 2006-2010 period due to increased failure rates e.g. SF6 indoor switch gear replacement, air break switches observed in the current period	

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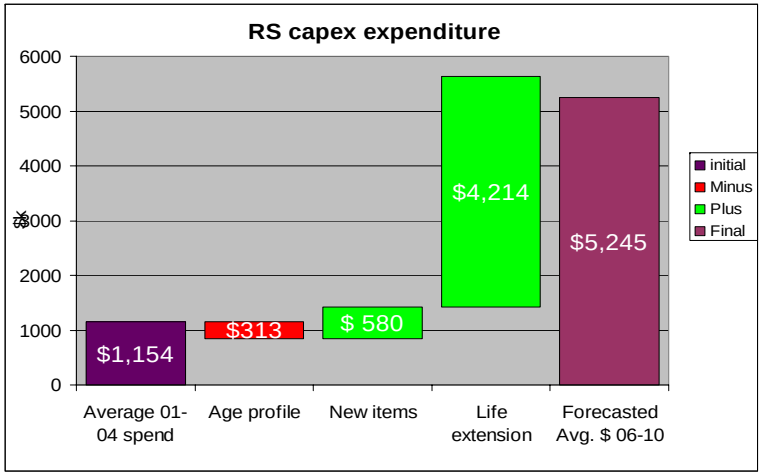
Capital Expenditure

		Average 2001-2004	Average 2006-2010	Comments	
RS	Sub Transmission Replacement	$1,154	$5,245	In addition, detailed assets audits and refinement of records has enabled new asset classes to be added to UED's asset records. These asset classes (and their associated expenditure requirements) were not taken into consideration in the company's 2000 Price-Service Offering (eg. Zone Substation civil works and earthing grids). UED has extended the life of the assets due for replacement in the 2001-2005 period through transformer, tap changer, circuit breaker and busbar refurbishments.	

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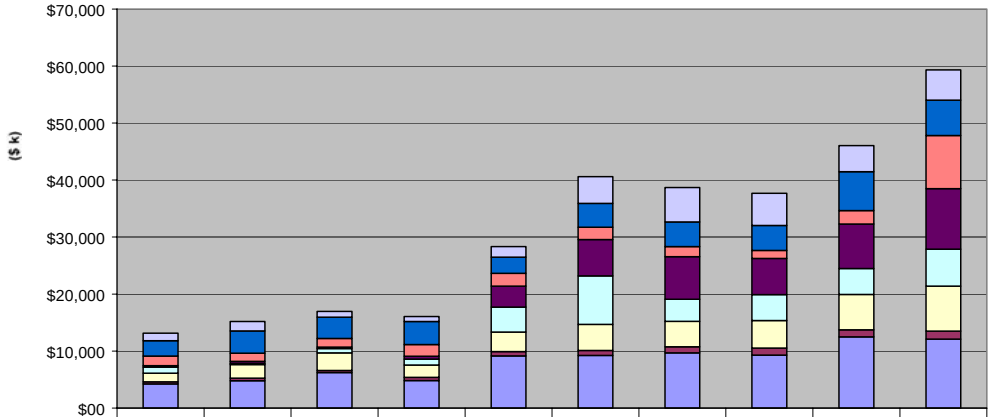
Finally, Figure 11.3 below shows UED's actual Reliability & Quality Maintained capital expenditure over the 2001-2005 regulatory period, alongside the company's expenditure benchmarks for the 2006-10 regulatory period.

Figure 11.3 - Recent and Future Benchmark Reliability & Quality Maintained Capital (Real $M as at June 2004)



	2001 Actual	2002 Actual	2003 Actual	2004 Actual	2005	2006 Benchmark	2007 Benchmark	2008 Benchmark	2009 Benchmark	2010 Benchmark
Subtransmission Replacements	$1,296	$1,688	$1,013	$ 849	$ 1,874	$ 4,691	$ 6,054	$ 5,631	$ 4,564	$ 5,287
Ntwk HV Install Replacment	$2,715	$3,888	$3,740	$ 4,058	$ 2,852	$ 4,178	$ 4,306	$ 4,397	$ 6,840	$ 6,232
Ntwk U/G Cable Replacement	$1,663	$1,420	$1,541	$ 2,082	$ 2,211	$ 2,152	$ 1,753	$ 1,401	$ 2,349	$ 9,313
Network O/H Replacement	$278	$379	$226	$ 486	$ 3,706	$ 6,368	$ 7,497	$ 6,340	$ 7,814	$ 10,627
S/T Comms/Protection Systems	$1,083	$201	$790	$ 1,038	$ 4,385	$ 8,525	$ 3,841	$ 4,553	$ 4,528	$ 6,446
Pole Replacement	$1,482	$2,377	$3,055	$ 2,150	$ 3,419	$ 4,590	$ 4,485	$ 4,837	$ 6,210	$ 7,923
Pole Staking	$363	$438	$349	$ 573	$ 762	$ 840	$ 1,081	$ 1,230	$ 1,244	$ 1,390
Pole Top Structures	$4,257	$4,815	$6,257	$ 4,823	$ 9,139	$ 9,253	$ 9,675	$ 9,277	$ 12,483	$ 12,104

11.4 Reliability & Quality Improvements

As already noted, the Commission proposes that any expenditure aimed at facilitating improvements in reliability to levels above the reliability targets will be self-funding under the S-factor scheme. On this basis, there is no allowance provided in the price control for capital expenditure aimed at delivering levels of reliability in excess of the reliability targets.

The Draft Decision provides an expenditure benchmark of $1.05 million per year for power quality improvement. As noted in section 7, UED confirms that this allowance is required to ensure the company improves its compliance with Distribution Code requirements for voltage delivery at the point of monitoring, such as steady state voltage, voltage unbalance and harmonics.

11.5 Environmental, Safety & Legal

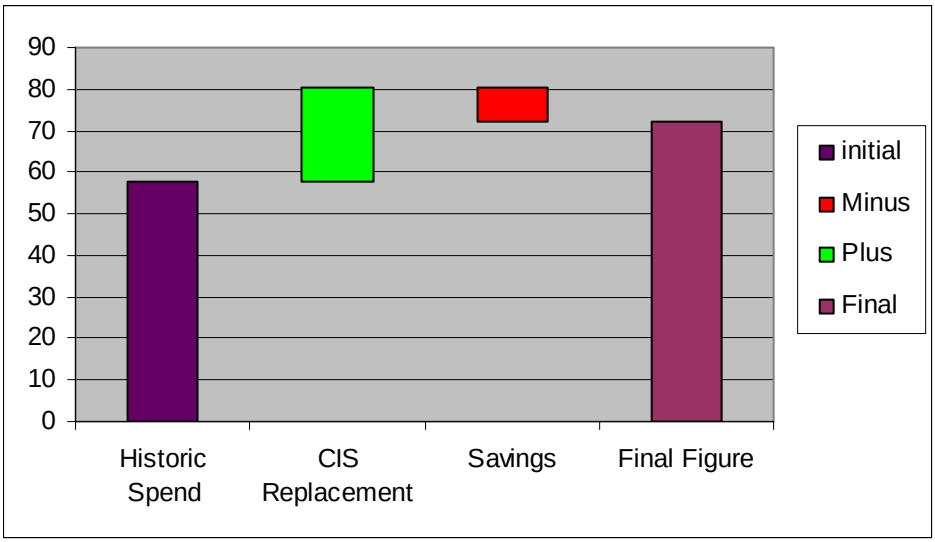
UED has lodged a separate submission on the safety-related expenditure benchmarks proposed in the Commission's Draft Decision.

As noted in section 8 of this submission, the Commission has adopted UED's proposed benchmarks for operational capital expenditure (which covers environmental and legal compliance expenditure) within the Environmental, Safety & Legal capital expenditure category. It is therefore unnecessary for the company to provide further information.

11.6 Non-Network General Assets – IT

Figure 11.4 explains the drivers of changes between UED's actual expenditure over the 2001 - 2005 period and the company's proposed expenditure benchmarks for 2006 - 2010.

Figure 11.4 – IT Capital (Real $M as at June 2004)



As shown above, on a "same-scope" basis, UED's expenditure benchmark for the 2006-10 period (denoted as "final figure") is lower than its actual expenditure over the 2001-2005 period, due to aggregate expected savings (on historic expenditure levels) of around $8 million over five years. When one takes account of the increased investment need of approximately $22 million associated with the replacement of the aging CIS system, the net benchmark over 5 years (on a like for like basis is approximately $8 million lower than the actual level of expenditure over the previous 5 year period.

11.7 Non-Network General Assets – Other

As noted in section 10 of this submission, the Commission has adopted UED's proposed benchmarks for capital expenditure within this category. It is therefore unnecessary for the company to provide further information.

11.8 Concluding Comments

In preceding sections of this submission, UED has stated its concern that the Commission prefers simple short-term historical trends to detailed analytical models in order to set capital expenditure benchmarks. As noted in section 4, the detailed analysis in relation to "quality and reliability maintained" capital expenditure illustrates the weakness in adopting broad judgement in setting benchmarks.

Notwithstanding UED's concern with the Commission's approach, the company is anxious to explain the necessary increase in future capital expenditure compared to recent history. UED had already provided what it considered to be a detailed explanation in its PSO. However, UED has now supplemented this information with further data in graph format with some accompanying explanatory text to illustrate the key drivers for future capital expenditure. UED urges the Commission to have regard to this information in its Final Decision, instead of relying on the unsubstantiated judgments and limited analysis contained in the Wilson Cook report.

12 Revised Capital Expenditure Benchmarks

Based on the analysis and explanation provided in the preceding sections of this submission, the table below sets out UED's revised capital expenditure benchmarks for the 2006-10 regulatory period. The values shown in the table represent the sum of the benchmarks, expressed in real $M at June 2004.

Table 12.1 - Benchmark Capital Expenditure by Category (Real $m at June 2004)

	Original Submission	Draft Decision	Revised Submission
Reinforcements Demand	115.7	85.2	103.5
Customer Initiated Capital	121.8	108.3	101.2
Reliability & Quality Maintained	239.3	177.8	233.6
Reliability & Quality Improvements	11.7	5.4	5.4
Environmental, Safety & Legal			
- Operational	14.3	14.3	14.3
- Electrical Safety Management Scheme	45.2	19.4	35.4
Sub Total (Environmental, Safety & Legal)	59.5	33.7	49.7
Non-Network General Assets – IT	50.1	40.1	50.1
IT IMRO Program *	Not Specified	0.0	11.0
Undergrounding	10.0	0.0	10.0
Technology Initiatives	25.0	0.0	25.0
Non-Network General Assets – Other	14.0	14.7	14.7
Total Spend	647.1	465.2	604.2
Customer Contributions	-24.3	-20.7	-19.3
Net Capital	622.8	444.5	584.9

* UED's original PSO allocated 100% of the replacement of the current customer and billing information system to the metering price controls. On advice from the Commission UED has re-allocated some of those costs (60%) back into Duos.