

Australian Energy Regulator

Review of Expenditure of Queensland &
South Australian Gas Distributors:
APT Allgas Energy Pty Ltd (Queensland)
(Public Version)

December 2010

Wilson Cook & Co

Engineering and Management Consultants
Advisers and Valuers

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Reply to: Auckland Office
Our ref: 1008
Email: info@wilsoncook.co.nz

17 December 2010

Mr Warwick Anderson
General Manager, Network Regulation North Branch
The Australian Energy Regulator
Marcus Clarke Street
CANBERRA ACT 2601

Dear Mr Anderson,

***RE: REVIEW OF EXPENDITURE OF QUEENSLAND AND SOUTH
AUSTRALIAN GAS DISTRIBUTORS: APT ALLGAS ENERGY PTY LTD
(QUEENSLAND)***

In response to your instructions, we have reviewed the gas access arrangement proposal submitted on 30 September 2010 by APT Allgas Energy Pty Ltd in relation to capital and operating expenditure for its Queensland network in the five-year periods ending FY 2011 and FY 2016 and have pleasure in submitting our report.

Capital Expenditure

The main conclusions to come out of the review in relation to capital expenditure are as follows.

- (a) The level and pattern of the capital expenditure expected to be incurred in the present period reflects continued growth, the deferral of various augmentation projects and the deferral of IT-related expenditure during the period and is considered prudent and efficient.
- (b) The principal capital expenditure proposed in the next period relates to forecast growth. In addition, the mains replacement programme is to be continued at a modest level, calculated to reduce UAFG slightly. A catch-up in mains augmentation work and in non-FRC-related IT expenditure is also proposed, together with other conventional elements. We consider that the prudence and efficiency of the proposed expenditure have been demonstrated adequately for us to recommend its acceptance, subject to the removal of contingency allowances, the reassessment of the rate of capitalisation of overheads and the following item.
- (c) The business should be asked to recalculate its real cost escalation by using escalation factors relating to each main element of cost incurred by the business as opposed to applying a labour cost escalation rate to all elements.

Operating Expenditure

The main conclusions in relation to operating expenditure are as follows.

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- (a) Operating expenditure in the present period is forecast to be about 7.5% higher than the approved level or 2.8% higher if expenditure on UAFG is removed, with the business noting that changes in its cost structure occurred during the period, after the change in its ownership.
- (b) The proposed base-year level of expenditure is considered efficient, based on our analysis of comparative operating expenditure data for FY 2009.
- (c) Adjustments are recommended in several of the proposed “step changes”.
- (d) The level of unaccounted-for gas in volumetric terms that the business proposes for the next period is considered reasonable.
- (e) The business should be asked to recalculate its real cost escalation by using escalation factors relating to each main element of cost incurred by the business as opposed to applying a labour cost escalation rate to all elements.

These conclusions are summarised in section 7 of the main text.

Conclusion

In conclusion, we acknowledge with thanks the assistance of APT Allgas’ staff and of the AER in carrying out this work.

Yours faithfully,

Wilson Cook & Co Limited

A handwritten signature in blue ink that reads "Wilson Cook & Co." with a stylized, cursive script.

Encl.

Review of Expenditure of Queensland &
South Australian Gas Distributors:
APT Allgas Energy Pty Ltd (Queensland)

Prepared for the Australian Energy Regulator

By Wilson Cook & Co Limited

Enquiries to Mr J W Wilson

Our reference 1008

December 2010

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Disclosure

Wilson Cook & Co Limited has prepared this report in accordance with the instructions of its client on the basis that all data and information that may affect its conclusions have been made available to us. No responsibility is accepted if full disclosure has not been made. We do not accept responsibility for any consequential error or defect in our conclusions resulting from any error, omission or inaccuracy in the data or information supplied.

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1 Introduction

1.1 Appointment

In June 2009, the Australian Energy Regulator (AER) appointed Wilson Cook & Co Ltd, Engineering and Management Consultants, Advisers and Valuers, of Auckland to assist it with a review of the gas access arrangement proposals submitted by the Queensland and South Australian gas distributors¹ to the AER on 30 September 2010 in relation to their capital and operating expenditure in the present access arrangement period (FY 2007 to FY 2011) and in the next period (FY 2012 to FY 2016). The terms of reference for the work are set out below.

This report deals with the expenditure related to APT Allgas Pty Ltd's Queensland network.²

1.2 Scope of Review

Capital expenditure

We were to review and assess the businesses' capital expenditure proposals and to advise the AER on whether we considered them consistent with a service provider acting efficiently and in accordance with good industry practice to achieve the lowest sustainable cost of providing the pipeline services. In particular, we were to consider:

- (a) forecast capital expenditure for the next period;³
- (b) actual or estimated capital expenditure in the present period relevant for the opening regulatory asset base;
- (c) the application of real cost escalators used by the businesses and as adjusted, if required, by the AER; and
- (d) adjustments to forecast capital expenditure based on advice that will be provided by the AER following its review of the businesses' demand forecasts.

In making our recommendations, we were to have regard to the factors listed under section 79(2) of the Rules that the AER will be required to consider in making its decisions. Consideration was also to be given to the national gas objective to promote efficient investment in and efficient operation and use of natural gas services with respect to price, quality, safety, reliability and security of supply of natural gas. (We understand in these regards that capital expenditure in the present period will be assessed by the AER under rule 79 of the Rules and where appropriate the criteria in sections 8.16 and 8.17 of the *Gas Code*⁴

¹ Envestra Ltd in respect of its Queensland and South Australian networks separately and APT Allgas Energy Pty Ltd in respect of its Queensland network.

² Throughout the report, references to the AER are generally to the management unless the sense requires reference to the Board itself; references to periods are to regulatory (access arrangement) periods unless the context requires otherwise; references to 'APT Allgas' or to 'the business' are to APT Allgas Energy Pty Ltd; and references to 'the network' are to APT Allgas' Queensland network.

³ Under this heading the terms of reference noted, "the review was to consider the justifications and drivers to support the proposed capital expenditure. For example in relation to market expansion or augmentation capital expenditure the reasonableness of the expenditure was to be considered in association with assumptions about the growth in demand; in relation to replacement and renewal capital expenditure the age and condition of the assets was to be considered along with the ongoing operating and maintenance expenditure over the life of the assets".

⁴ 'National third party access code for natural gas pipeline systems', including amending agreements.

and that capital expenditure in the next period will be assessed in accordance with rule 79 of the Rules.⁵⁾

With respect to any recommendation under item (b), we were required to provide only a “high level” review of the efficiency of actual capital expenditure, noting any exceptions, and to identify the reasonableness of any estimates where actual data were not available.⁶

Operating expenditure

We were to review and assess the businesses’ operating expenditure proposals and to advise the AER on whether we considered them consistent with those of a service provider acting efficiently and in accordance with good industry practice to achieve the lowest sustainable cost of providing the pipeline services. In particular, we were required to consider:⁷

- (a) workload escalation factors (including the effects of efficiencies of scale) used to estimate forecast operating expenditure in the next period;
- (b) the application of real cost escalators, adjusted, if required, by the AER;
- (c) interaction and trade-offs between operating and capital expenditure;
- (d) incentives of the service providers to achieve operating efficiencies – in particular, any commercial arrangements for the procurement of services from third parties; and
- (e) adjustments to forecast operating expenditure based on advice that will be provided by the AER following its review of the service provider’s demand forecasts.

Where past operating expenditure is proposed as the base on which to establish operating expenditure in the next period we were to provide an assessment of the reasonableness of the base-year level of operating expenditure and the appropriateness of any material changes from that level relating to new requirements or other legitimate causes.

In making our recommendations, consideration was to be given to the national gas objective to promote efficient investment in and efficient operation and use of natural gas services with respect to price, quality, safety, reliability and security of supply of natural gas.

Other Requirements

If the proposed expenditure was not considered reasonable, we were to provide an alternative estimate.

Attention was to be focused on the material expenditure components but we were to make any recommendations considered necessary in relation to the overall level of capital and operating expenditure.

Definitions

We noted that the terms of reference did not define ‘prudence’, ‘efficiency’ or ‘lowest sustainable cost’ and so we state later in this report the interpretation of those terms on which we have relied in our assessment.⁸

⁵ A précis of the requirements of the Rules in relation to capital expenditure was set out in background information provided separately to us by the AER. Both the *Gas Code* and the Rules consider the compliance of expenditure in terms of whether it is needed for maintenance of the safety, integrity or capacity of the services or words to that effect. However, they also list other grounds on which expenditure could be considered compliant – e.g. in relation to revenue exceeding cost or suchlike.

⁶ The term “high level” as used here and elsewhere in the report in relation to the review of expenditure is taken to mean an overall review as opposed to a line-by-line review.

⁷ The consideration of expenditure items not determined on technical (engineering) grounds, *viz.* carbon costs, debt-raising costs, self-insurance costs and marketing costs, was excluded from our review.

⁸ See section 2.1.

Other Matters

We were to advise the AER, if required, on any adjustments needed in the forecast expenditure because of the AER's review of the distributor's demand forecasts but no such request was made.

Although not a written requirement of the terms of reference, we were to liaise with the business during the course of our review including, if necessary, requesting through the AER any additional information or documentation needed and meeting with the business as required.

We were to present our draft reports to the AER by the end of November 2010 and our final reports by 17 December.

1.3 Relevant Material and Consultation

For the purpose of the review, we received and considered the business's proposal and its supporting documents, particularly its proposed *Access Arrangement Information* (AAI) and its accompanying *Access Arrangement Submission* (which we refer to in this report as "the submission"), supporting appendices and documents (e.g. internal policies and procedures, technical reports and data) and the report of the relevant jurisdictional regulator for the present period. We sought and received clarifications and additional information from the business in the form of explanations given at our meetings with its staff in Brisbane on 25 and 26 October 2010 and in subsequent correspondence.⁹

We acknowledge with thanks the cooperation of the business's staff in this regard and the comprehensive nature of its documentation.

1.4 Matters Not Reported On

The review was limited to the context of our instructions – specifically, the particular scope of work set out in section 1.2 above.

The following matters were excluded from consideration in our work or were not undertaken:

- review of forecast demand, as that was not within our terms of reference;
- review of the business's policies for the capitalisation of expenditure (although we have commented where thought fit on the **quantum** of some amounts that are to be capitalised in the next period and on some instances where we considered the expenditure not to be capital in nature);
- review or re-calculation of detailed network analyses;
- review of the cost-of-materials or cost-of-labour escalators applied by the business;
- review of expenditure other than that associated with the business's network business unit;
- review of capital contributions;¹⁰
- physical inspection of the assets;
- recalculation of expenditure if we had reason to consider the projections inappropriate, other than in respect of proposing adjustments for the AER's consideration;

⁹ The business's proposal and supporting documents were received by us on or around 1 October 2010 and responses to our requests for additional information, sent through the AER, were received up to 1 December 2010.

¹⁰ Our assessments relate to gross capital expenditure, not net.

- consideration of the possible effects of the following factors that can only be conjectured:
 - requirements for capital expenditure related to future safety issues, new statutory requirements, new Government policies or initiatives, or environmental requirements except to the extent that they have been identified by the business;
 - possible adjustments in capital expenditure stemming from the application of demand management policies other than those already reflected in the business's estimates;
 - any changes from current network planning or design practice;
- review of financial models;
- consideration of the impact of any performance incentives applied to or available to the businesses by or through the AER or its predecessor to achieve operating efficiencies (other than the normal commercial incentives for a business to operate efficiently);
- consideration of the financial or economic effect if any on the business or any other party of the proposed expenditure or our recommended levels of expenditure;
- any matters outside our field of expertise; and
- any other matters identified elsewhere in the report as having been excluded from our work.

We did not attempt to verify the accuracy of the data provided to us or of the statements and representations made by the business. Nor did we carry out an audit of the business's accounts, asset register, data, expenditure, processes or any item or activity or take any action that might be considered to have constituted an audit. We relied solely on the submissions received from the business and the representations made in response to our enquiries.

1.5 Independence and Probity

Wilson Cook & Co Limited and its reviewers are all independent of APT Allgas Energy Pty Ltd and the AER, other than in the context of providing the AER with professional advice on expenditure matters from time to time.

Whilst the AER's staff provided guidance in respect of our terms of reference and assisted us with our work and whilst we considered their advice and requests, we are satisfied that none influenced our report or its conclusions inappropriately.

2 Definitions and Network

2.1 Definitions

Prudence and Efficiency

The terms of reference do not define prudence or efficiency for the purpose of the review. Therefore, without attempting to interpret the Rules (and except in the case of our assessment of prudence of the business's capital expenditure in the current period – see below), we adopted the following approach.

We first noted that the objective of the review was, in essence, to assess the business's expenditure proposals and to report to the AER on whether in our opinion the proposed expenditure reasonably reflected the efficient costs of a prudent gas distribution business working in the circumstances of the business concerned.

We noted that to ensure adequacy or effectiveness, a prudent operator might undertake more work than otherwise considered necessary but to ensure efficiency it might undertake less and thus a balance between the two is required.

We noted that *prudence* has connotations of exercising sound judgement especially concerning one's own interests, being careful to avoid undesired consequences, being cautious or circumspect in one's conduct, managing carefully and with economy. Prudence is often best judged by the absence of evidence suggesting a lack of it. In the case of gas networks, imprudence might be most discernible if there was evidence of failure to invest adequately, accompanied by identified adverse consequences, and is thus best assessed retrospectively.

Where we considered that there was an appropriate balance between these factors, prudence and efficiency, we have said in the text that we consider the expenditure "reasonable". Where we identified instances of imprudent expenditure, an imprudent failure to make expenditure or of what appeared to be inadequate provision for future expenditure, we have described them.

We considered *efficiency* in terms of the nature or timing of expenditure and looked for evidence that as far as practicable the expenditure reflected optimal planning and design and competitive costs taking account of local factors, 'good gas industry practice' and the defined security of supply and service standards of the business concerned.

Good Gas Industry Practice

We interpreted *good gas industry practice* to be the exercise of that degree of skill, diligence, prudence and foresight reasonably to be expected of a gas distribution business working under the prevailing conditions consistent with applicable regulatory, service, safety and environmental objectives.

Lowest Sustainable Cost

Both the Code and the Rules refer at various places to the "lowest sustainable cost" of providing pipeline services or words to that effect but neither defines these terms. For the purpose of our report, we have interpreted "lowest cost" to mean the cost to the business (and hence to the customer) of implementing the least-cost option of delivering the required services, constructing the facilities necessary to deliver the services, carrying out operational

or maintenance activities necessary to deliver the services, maintaining the required level of safety, integrity or capacity of the services or, in short, meeting the applicable statutory and regulatory obligations and requirements as the case may be.

The encapsulation of performance measures as a regulatory obligation avoids the need for us to go into those matters in our review.

After determining the scope of a project or expenditure programme on the basis of demand and other factors, and having identified, quantified, and valued the costs and benefits of the project alternatives, the next step in project assessment is to identify the least-cost or most cost-effective alternative to achieve the purpose of the project. A comparative analysis of the scale, location, technology and timing of alternative project options or designs is often required. Such an analysis will take into account the costs to the business (and thus indirectly the costs to its customers) in testing for least-cost or productive efficiency. Alternatively, if the effect or outcome of a project can be quantified but not valued, the average incremental cost can be estimated with the aim of establishing the project alternative with the lowest per-unit cost.¹¹

The costs and benefits considered should be “life-cycle” costs – *viz.* the costs and benefits over the expected life of the project or programme concerned. This ensures that a long-term view is taken of investment requirements.

In this way, the “sustainability” of delivery of the pipeline services (which we interpret to mean sustainable at the required level over time) is inherent in the concept of the least-cost option in that a long-term view is taken when identifying the project requirements (in terms of service capability, capacity or the like), the costs and the benefits of the options available to meet the identified need and the resulting solution.

As can be seen from the preceding text, the concept of least-cost options inherently incorporates the selection of modern designs and technologies and such other features as are in accordance with good industry practice.

2.2 Brief Description of Network

The network originated around 1885 when the Brisbane Light & Gas Company was formed to reticulate manufactured gas (its operating area was restricted to the southern side of the Brisbane River by the State government in 1889). The network was converted to natural gas after the completion of the Roma-to-Brisbane gas transmission pipeline in 1969. It now serves about 82,000 customers in South Brisbane, the western regions (including Toowoomba and Oakley) and the south coast region (including the Gold Coast, Tweeds Head and Banora Point).¹²

It transports about 7.7 PJ of gas p.a. to 102 large customers who each consume more than 10 TJ p.a. and 2.8 PJ of gas p.a. to the remaining customers, as summarised in Table 2.1.

Growth in the number of connections is forecast to continue over the next period at a rate of about 3,030 p.a., a rate of increase of 3.6% p.a. Consumption per residential customer is expected to fall slightly (at a rate of 0.6% p.a. over the next period) whilst the total throughput is expected to remain relatively steady.¹³

¹¹ The use of edited text based on World Bank guidelines is acknowledged.

¹² Maps showing the coverage of the network are provided as attachment 1.1 to the submission.

¹³ The submission, p. 30, shows total network consumption as relatively steady when taken over the present and next periods.

Table 2.1: Customers and Demand in FY 2010

Customer Category	Number	Percent	TJ p.a.	Percent
< 10 TJ p.a. – Volume Customers (Residential)	76,983	94%	785	8%
< 10 TJ p.a. – Volume Customers (Commercial)	4,739	6%	2,015	19%
	81,722	100%	2,800	27%
≥ 10 TJ p.a. – Demand Customers	102	0%	7,666	73%
	81,824	100%	10,466	100%

Source: AAI, attachment 3.1(Load Forecast), pp. 33-37. Sums may not add due to rounding.

The extent of the network by location is shown in Table 2.2.

Table 2.2: Network Extent by Location

Location	Length in Service (km)
Brisbane	1,717
South Coast	628
Northern NSW	33
Toowoomba	528
Oakley	36
Total	2,942

Source: submission, p. 9.

Gas is delivered via nine gate stations located at Oakey, Toowoomba, Dinmore, Ellengrove, Willawong, Runcorn, Wishart, Tingalpa and Doboy.

The network operates at four pressure levels as shown in Table 2.3.

Table 2.3: Network Operating Pressures

Pressure	Length in Service (km)
Low	295
Medium	439
High	1,741
Transmission a/	467
Total	2,942

Source: submission, p. 9.

a/ Transmission pressure refers to distribution mains operating at a pressure of > 1,050 kPa.

Of the pipeline materials in use, 65.5% (1,928 km) are polyethylene, 18.0% (531 km) are protected steel, 4.7% (139 km) is unprotected steel, 11.6% (340 km) are cast iron and a small quantity (5 km) of nylon.¹⁴

Unaccounted-for gas (UAFG) in FY 2011 is projected to be about 450 TJ p.a. or 4.1% of gas input and the business estimates that 75% of it arises from the cast iron and unprotected steel pipes that it retains in service.¹⁵

¹⁴ *Asset Management Plan*, p.33.

¹⁵ *Ibid*, p. 86.

3 Capital Expenditure in Present Period

3.1 Summary of Expenditure

Capital expenditure in the present period is projected to be \$119.2 m compared to \$147.0 m approved by the QCA in its last decision, a decrease of \$27.8 m or 19%. A breakdown of expenditure by category is in Table 3.1.

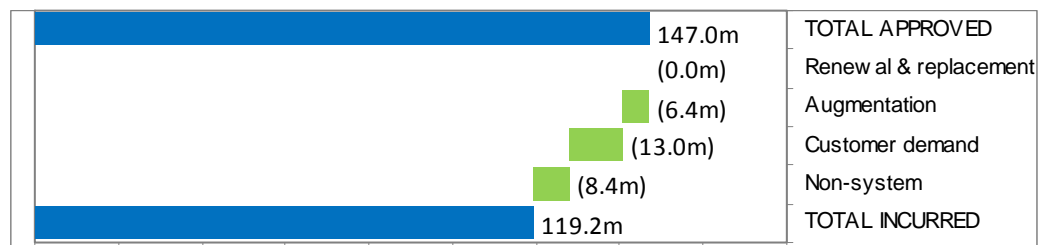
Table 3.1: Capex in Present Period vs. Decision (\$2010 m)

		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total
Renewal & Replacement	Approved	7.1	6.9	6.7	6.7	6.5	33.9
	Incurred	3.8	2.3	8.6	9.7	9.4	33.8
	Variance	(3.2)	(4.6)	1.9	3.0	2.8	(.0)
Augmentation	Approved	1.6	2.6	3.0	5.5	.1	12.8
	Incurred	2.3	.4	.5	2.5	.8	6.5
	Variance	.6	(2.2)	(2.5)	(3.1)	.7	(6.4)
Customer Demand	Approved	13.9	15.0	15.8	16.8	18.9	80.3
	Incurred	13.8	14.6	13.8	12.2	12.9	67.3
	Variance	(.1)	(.4)	(2.0)	(4.6)	(6.0)	(13.0)
Non-System	Approved	7.5	3.2	3.1	3.2	3.1	20.0
	Incurred	6.3	2.1	1.5	.8	.9	11.6
	Variance	(1.2)	(1.0)	(1.6)	(2.3)	(2.2)	(8.4)
Total	Approved	30.0	27.6	28.6	32.2	28.7	147.0
	Incurred	26.2	19.4	24.4	25.2	24.0	119.2
	Variance	(3.8)	(8.2)	(4.1)	(7.0)	(4.7)	(27.8)
		-13%	-30%	-14%	-22%	-16%	-19%

Source: AA Submission, p. 39, table 4.1, converted to \$2010 m. Figures may not add due to rounding.

Under-expenditure occurred in all categories, as illustrated by the summary of variances in Figure 3.1.

Figure 3.1: Variances by Category (\$ 2010 m)

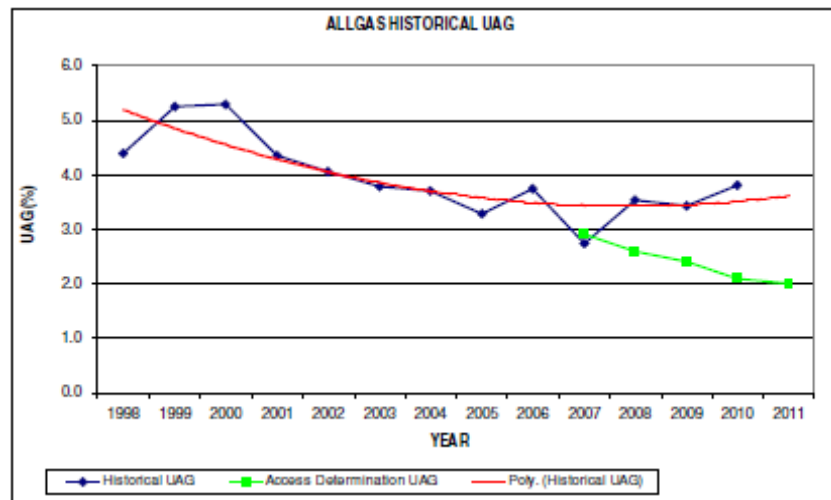


The major reduction is in growth-driven expenditure, despite which the business expects to connect 425 more new customers than projected. This was achieved by focussing on new connections that could be made with the minimum of additional expenditure on mains work.

The other major reduction was in augmentation work, driven principally by deferral of the second stage of the south coast mains extension project, due in turn to slower demand growth in the south coast region and better pressure from the Roma-to-Brisbane pipeline.

Expenditure on mains replacement was curtailed in the first two years of the period after the ownership of the business changed but was resumed in the final three years, in response to an increase in UAFG. Figure 3.2 illustrates the situation.¹⁶

Figure 3.2: Trend in UAFG



The variance in non-system expenditure is attributable to deferral of the planned IT projects other than those related to the introduction of full retail contestability (FRC).

3.2 Assessment

Capital Expenditure Performance Review

APT Allgas discusses its capital expenditure in the period in its submission (pp. 38-45) and provides a further analysis in its *Capital Expenditure Performance Review*.¹⁷

The business states in relation to capital expenditure in the period,¹⁸

Ownership of the [network] was transferred from Energen to APA Group on 1 November 2006. The transition period required an adjustment to the new work environment including establishment of new supporting systems, review of existing processes, policies, work procedures and organisation structure to be able to optimise overall performance in accordance with the business targets of APA Group.

Its submission (p. 63) also refers to market conditions that it describes as difficult and uncertain, following the global financial crisis.

We consider that the business's response to these factors was sound commercially and that its approach to optimising its capital expenditure to maximise new connections whilst minimising connection cost (as well as its approach to reducing expenditure on mains replacement commensurately with the relatively low level of UAFG measured on the network – of between 3% and 4% of gas input) was also sound.

The *Capital Expenditure Performance Review* discusses the status of each major project and programme undertaken in the present period and, for each, the need for the work, the options considered, the justification claimed and the status of the work.

¹⁶ Taken from p. 99 of the submission. The green line shows a forecast developed by the business prior to the ownership change.

¹⁷ Attachment 4.4 to the AAI.

¹⁸ Submission, p. 38.

Demand-Driven Expenditure

As already discussed and explained, the number of new domestic connections was higher than projected and the reported cost lower. Unit costs of industrial and commercial connections were not reviewed due to their more specialised nature.

Prima facie, we consider the expenditure was prudent and efficient.

Mains Replacement Work

The business expects to replace 58 km of mains, compared to the 210 km foreseen at the commencement of the period. The *Mains Replacement Strategic Plan* states,

In 2007 and 2008, there was slow-down in mains renewal program related to change of network owners and related transition period. Continuation of Main Renewal Program started in 2009 with renewal of old mains in Brisbane suburbs of Highgate Hill and Norman Park...

The average cost per kilometre achieved in FY 2010 was \$[c-i-c] per metre, compared to the rate foreseen by the QCA's advisers of \$[c-i-c] per metre.¹⁹ However, caution is needed before drawing any conclusions from this comparison as the work may not have been carried out in the places originally intended, it was contracted out competitively and other considerations may have affected its cost.

Despite the higher average cost reported we considered the work prudent and efficient.

Expenditure on Augmentation Projects

The *Capital Expenditure Performance Review* discusses project variances for the South Coast Supply Project Stage 1, the Wynnaum Augmentation Project and other projects that have been implemented.

We considered the explanations reasonable and, given that the work was contracted out competitively, we further considered the expenditure prudent and efficient.

Non-System Expenditure

Non-system expenditure of \$11.6 m is estimated, compared to an allowance of \$20.0 m. Of the amount spent, \$8.3 m is said to have been IT expenditure related to the introduction of FRC and the remainder to motor vehicle replacement, minor upgrading at the Mansfield and South Coast depots and the replacement of other equipment.

The variance of \$8.4m is mostly related to the deferral of IT improvements that the business now plans to carry out in the next period.

We considered that the work undertaken was of a type that was required and we further considered the expenditure prudent and efficient.

3.3 Other Considerations

Documented Current Practices

When considering the level of capital expenditure incurred in the present period we took into account APT Allgas's stated capital expenditure planning and approval processes and its expenditure "governance" processes which are described briefly in the submission and were explained to us during our meetings.

¹⁹ *Report on Allgas Capital and Operating Expenditure*, Energy Consulting Group (ECG), April 2006, p. 100. The reported figure of \$[c-i-c] per metre has been inflated to FY 2010 dollars at 2.5% p.a.

We considered from the documents and our meetings that the business's technical documentation was sound and that its engineering management was knowledgeable in relation to the network and its needs. We considered that the present network strategic planning process, which includes a *Network Development Plan*, an *Asset Management Plan*, a *Capacity Management Strategic Plan*, a *Mains Replacement Strategic Plan* and capital expenditure governance processes – we did not review any earlier plans – was well structured. We noted the documents included consideration of performance levels and risk assessments. We concluded the plans and their accompanying documents (principally, business cases) to be suitable, in a general sense, for the prudent management of the assets.

However, we noted that, in general, the documents describe the business's present practice, not its practice in the earlier years of the present period or in preceding years. As a result, only inferences can be made from the present documents in relation to practices in earlier years of the present period.

Independent Review

Attachment 4.5 to the business's submission comprises a review of capital and operating expenditure in the present period and the next by Parsons Brinckerhoff (PB). In relation to the present period, PB concludes (p. 13):

The actual costs for the current AA period are \$111.93 million, representing a decrease of \$18.86 million, or 14.4% below the forecast expenditure. The reasons provided by Allgas for the cost variation are presented in Section 4.2.1 of this report. Also, Allgas has achieved a significant unit cost reduction in residential customer connections when compared with forecast unit cost in the current AA.

Allgas has provided details of the competitive tendering process methodology for the efficient pricing of the projects used in the current access arrangement period.²³

In PB's opinion, the justifications provided by Allgas for the variation in capital expenditures are prudent. The methodology followed in forecasting the project budget and its subsequent implementation in the current access arrangement is as would be incurred by a prudent operator acting efficiently as specified in the National Gas Rule 79 (1) (a).

²³ APT Allgas Energy Pty Limited *Tendering Processes*.

The quotation is taken from a section headed "overall comment on capital expenditure" but nevertheless PB does not go on (in that section) to indicate the reasons which led to the lower unit rate it reports in the first paragraph quoted above – viz. the selection of new connections requiring the minimum of associated mains extension work.

It was not completely clear to us that PB's report fitted the description in the submission, p. 47:

APT Allgas has engaged Parsons Brinckerhoff to provide an independent assessment of the estimation of unit rates used in the proposed expenditure".

The closest we could find to such an assessment was on p. 17 of PB's report, where PB states,

The project costs estimated by Allgas follow the guidelines established in the Allgas tendering process. It is PB's opinion that the tendering process is in accordance with the good industry practice and encourages low sustainable costs for the projects. Almost all of Allgas's projects is [sic] outsourced through competitive tendering which promotes efficient market tested pricing of the projects.

The business confirmed that this was the text that it intended be referred to in the reference to PB on p. 47 of its submission but we noted that PB's work does not go into depth on unit rates.

We noted PB's statement on p. 23 of its report:

Detailed comparison cannot be made for individual activities due to network ownership changes from Energen to Allgas which resulted in the restructuring of the Allgas accounting system.

We further noted that PB had considered the reasonableness of capital expenditure in the present period through benchmarking, concluding that APT Allgas's expenditure was higher than the other businesses it compared but that APT Allgas's explanations for this were reasonable. Whilst we acknowledge PB's view, we do not normally consider that the benchmarking of capital expenditure is valid, as the networks of the businesses compared usually vary considerably along with the nature of and timing of the capital expenditure requirements in relation to them.

We did not consider PB's conclusion that the expenditure conforms to the Rules as that is a matter for the AER to determine.

We did accept, however, that the report presents an independent opinion that, after investigation, the reviewer found the capital projects to be prudent and efficient.

Other Considerations

We did not consider it necessary to request business cases for the projects in the present period (most of which are now complete or substantially so) but considered it more relevant to review statements on the completed cost of major works, as discussed earlier in this section. We were interested principally in the major works in this regard, as routine works are by their nature generally both necessary and prudent, their design is seldom contentious and their cost-effectiveness is implicit in the use of competitively contracted rates.

We relied also on the explanations given in relation to the expenditure by the business in its submission and at our meetings.

We further considered that the circumstances in which the business was operating at the time, as noted earlier in this section of the report.

We asked for an explanation of the variances in expenditure by category and received responses to our enquiries at our meetings.

In essence, we sought, by these methods, to confirm the necessity, optimality and cost effectiveness of the capital expenditure made in the present period and in general, we were satisfied by the information received in these respects.

3.4 Conclusion

We noted the reasons given by the business for the deferral of expenditure in the period.

We recognise, as a general principle, that businesses of this type can make short-term decisions to defer expenditure if needed to conserve cash or for other commercial reasons and that it is often possible to do so without jeopardising the operations materially. However, such situations catch up with businesses eventually and need to be corrected.

We discussed the expenditure during our meetings and we have taken the observations noted above into account in our further reviews in the remaining sections of this report.

Variances in individual categories were significant but APT Allgas appears to have managed its expenditure carefully, making reductions in discretionary expenditure to reduce the overall level. This was a reasonable and appropriate response to the circumstances in the period.

Taking all matters reported in this section into consideration, we conclude that the \$119.2 m of capital expenditure incurred or projected to be incurred in the present period as stated in

Table 3.1 may be accepted as prudent and efficient by the AER when it considers whether the expenditure ought to be added to the regulatory asset base for the next period.

Our conclusion is based on the expenditure stated in Table 3.1 and does not take account of any revisions that may have been made subsequently by APT Allgas to that expenditure.

Related Matters

Level of Capitalised Overheads Not Reviewed

We did not review the level of overheads that have been capitalised and included in the estimates discussed in this section of our report.

Capital Contributions Not Deducted

We further note that we did not review any matters related to capital contributions, as they are a revenue matter, not an expenditure matter, and that the expenditure as just stated is gross expenditure, i.e., before the deduction of capital contributions.

Depreciation Not Assessed

Our terms of reference did not ask us to consider the changes that APT Allgas has proposed in its standard asset lives, although some depreciation will need to be recognised in relation to expenditure that is added to the opening regulatory asset base for the next period.

4 Capital Expenditure in Next Period

4.1 Summary of Proposed Expenditure

Capital expenditure in the next period is forecast to be \$125.5 m compared with the forecast incurred level in the present period of \$119.2 m, an increase of \$6.2 m or 5%. A summary of the forecast expenditure by purpose is given in Table 4.1 and a summary by asset category is given in Table 4.2.

Table 4.1: Forecast Capex in Next Period (\$2010 m)

	FY ->	2011	2012	2013	2014	2015	2016	Total
Renewal and replacement		9.4	5.5	5.5	5.8	6.5	6.2	29.4
Augmentation		.8	1.5	1.4	2.9	2.2	2.4	10.5
Customer demand		12.9	14.4	15.1	15.5	16.2	17.0	78.2
Non-system		.9	3.0	1.9	1.3	.6	.5	7.4
Total		24.0	24.5	23.9	25.5	25.5	26.0	125.5

Source: RIN adjusted to \$real 2009-10. Figures may not add due to rounding.

Table 4.2: Summary by Asset Category (\$2010 m)

	FY ->	2011	2012	2013	2014	2015	2016	Total
HP steel mains		.3	1.4	1.6	3.1	2.5	2.7	11.2
HP steel services		.0	.1	.1	.1	.1	.1	.3
Dist mains and services		17.1	15.5	16.1	16.5	17.2	17.8	83.0
Tariff metering		3.5	3.3	3.3	3.7	4.3	4.1	18.7
Contract metering		.0	.1	.1	.1	.1	.1	.3
Network pressure control		2.1	1.2	.9	.8	.8	.9	4.6
IT Systems		.9	2.7	1.6	1.0	.3	.2	5.8
SCADA, telemetry		.0	.3	.4	.4	.3	.3	1.6
Land and buildings		.0	.0	.0	.0	.0	.0	.0
Total		24.0	24.5	23.9	25.5	25.5	26.0	125.5

Source: RIN, converted to \$2010 m. Figures may not add due to rounding.

Basis of the Forecast

The business has presented several plans that form the basis of its expenditure forecast – in particular, its *Network Development Plan*, *Asset Management Plan*, *Capacity Management Strategic Plan*, *Mains Replacement Strategic Plan* and their various supporting documents. Together, these documents outline its strategy to replace further cast iron and unprotected steel mains on its network but at a modest rate, further augment the network in line with the foreseen growth in demand and connect new customers.

Its submission states (p. 47 *et seq*) that its cost estimates are based on current contractors' costs and applicable overhead charges and that it compares its estimates to historical actual costs on similar work. It states that unit costs have been estimated separately for all proposed projects in the subcategories: material, direct labour, contractors and overheads. These

estimates, “developed using actual data and engineering best assessments”, are in FY 2011 dollars. Detailed information on the unit rates and quantities used are given in the *Capital Expenditure Plan*.²⁰

The submission states that the forecast unit rates have been escalated using Access Economics’ real labour cost escalation rates and the business confirmed that only a labour escalation rate had been applied. We have separately advised the AER that different escalation factors ought to be applied for materials and labour separately, assuming proportions nominated by the business itself (based on its reported costs) or proportions common in the industry.

The business out-sources its capital works (material and labour) through public tenders, “continues to test the market in regular intervals to ensure that the proposed projects will be executed at the lowest sustainable cost” and “competitive tendering for supply of material is planned to be organised each year and for provision of capital works services in 2 to 3-year intervals”.

We further note that as a final part of the expenditure formulation process, PB was engaged to report on the proposed expenditure and we discuss its findings in section 4.8.

Variations from Present Period

Figure 4.1 shows the trend in expenditure in the present period and the next and demonstrates that there is no significant change over the time.

Figure 4.1: Expenditure Trend (\$2010 m)

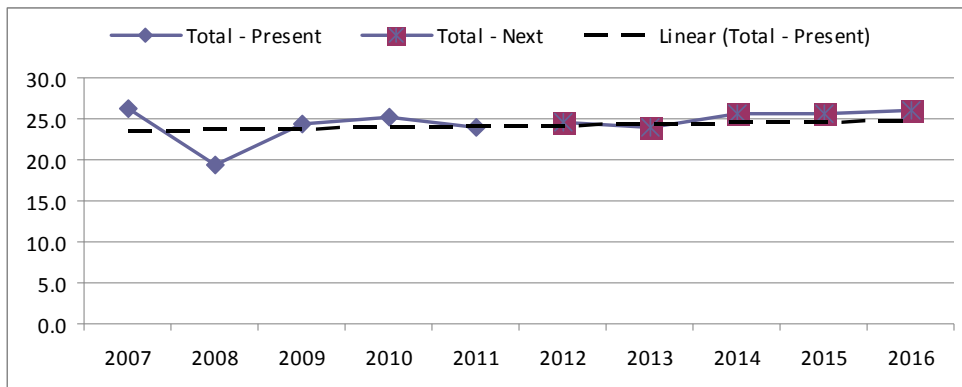
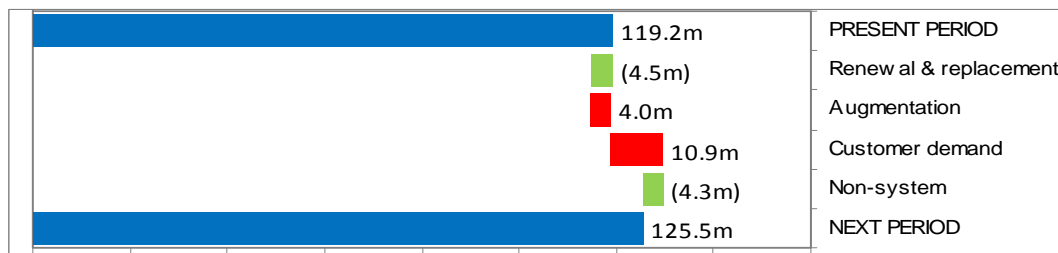


Figure 4.2 illustrates the contributions of changes in the various expenditure categories from the present period to the next.

Figure 4.2: Increases from Present Period to Next (\$ 2010 m)



²⁰ We do not appear to have received a copy of the *Capital Expenditure Plan* but we did receive supplementary details on the calculation of capital expenditure during our meetings with the management and staff of the business.

4.2 Growth-Related Expenditure

The largest expenditure category in the next period is growth-related expenditure on mains, inlets (i.e. service connections to customers), meters, connections to new areas and connections to large customers. The business proposes to spend \$78.2 m on these items in the next period compared to \$67.3 m in the present period. Of the total forecast expenditure, \$29.7 m is attributable to mains, \$37.2 m to services and \$11.2 m to meters.²¹ An outline of the work proposed is given on p. 48 *et seq* of the submission and further information was provided at our meetings.

The business's submission states (p. 48):

The forecast of capital expenditure related to new residential, commercial and industrial customer connections is directly related to forecast of new customer connections.

Historical data is used to estimate average length of main extensions and average total costs per individual customer.

The proposed unit rates for residential customer connections are based on current schedule of rates with preferred contractor, actual material and direct labour costs and average overhead charges. This rate is compared with available historical average costs and adjusted, if required, to produce the most realistic forecast. The proposed unit rates for commercial and industrial customer connections are based on historical average costs.

A review of the demand forecast was outside the scope of our work but we considered the composition of the forecast unit rates, noting the breakdown in rates in the additional data received at our meetings, and were satisfied that the unit rates were within the range we expected.

We noted that the expenditure related to demand customers is based on the projected increase in the number of such connections.

Regarding mains extensions work related to new connections, using the data provided at our meetings, we calculated that the extensions range from an average of 10 m for new customers in established areas to 14 m for customers in new housing estates. For industrial and commercial customers with annual consumption below 10 TJ, a length of 20 m has been allowed and, in the case of customers with greater demand, 100 m has been allowed. These lengths are within the range we would expect.

Meters make up the remainder of the expenditure. We understand that their cost includes the cost of the meter itself, a regulator and a meter box. The unit rates set out in the data provided at the meetings are within the range we would expect.

We satisfied ourselves in broad terms that application of the stated unit rates to the volumes derived from the demand forecasts matches the proposed expenditure in the case of volume customers. We did not attempt to verify the calculations for demand customers, given their special nature.

In conclusion, we were satisfied that the proposed growth-related work is prudent in scope and timing, based on the business's forecast demand (which we did not review). We discuss the cost-efficiency of the work further in section 4.6 and subsequent sections.

²¹ Source of figures: slide 35 in presentation received at October meetings, converted to FY 2010 dollars.

4.3 Renewal and Replacement Expenditure

Renewal and replacement expenditure in the next period amounts to \$29.4 m compared with \$33.8 m in the present period. The proposed expenditure is made up of mains replacement (\$21.4 m), meter replacement (\$5.4 m) and expenditure in relation to other system assets (\$2.6 m).²²

Mains Replacement

Mains replacement expenditure is to continue in the next period but at a modest level, the object being to minimise capital expenditure on this item whilst slowly reducing current maintenance costs and the cost of UAFG.

The *Mains Replacement Strategic Plan* presents an assessment of network condition and risk and an economic assessment of mains replacement in full, an option that it finds marginal. The plan evaluates three different rates of mains replacement – 85 km p.a., 28 km p.a. and 18 km p.a., selecting the lowest rate as adequate to maintain the integrity of the network and to balance risk with the availability of funds.²³ Mains with a high incidence of breakage in high-density areas are to be given priority.

The strategy was described to us at our meetings as, in essence, maintaining UAFG substantially at its present level in the next period whilst minimising expenditure on replacement consistent with prudent management of the network, or words to that effect.

Expenditure vs. UAFG

The business's projected level of UAFG in the next period is given in its *Mains Replacement Strategic Plan*, p. 24. It is based on a contribution of 680 GJ per km p.a. to the total UAFG from cast iron and unprotected steel mains. It allows for leakage reduction due to the proposed 18 km p.a. of replacement of these types of main each year and it allows for escalation in the leakage from the remaining mains of this type of 3% p.a.²⁴

We considered the assumptions reasonable and noted from our own calculations that they were in reasonable alignment with the total metered level of UAFG on the network, after allowing for other sources of UAFG.

We note that the rate of mains replacement proposed (18 km p.a.) is substantially the same as that undertaken in FY 2010 and projected to be undertaken in FY 2011 and that this rate of replacement has been found by the business to be sufficient, in the present period, to stabilise UAFG and reduce it slightly, as shown in Figure 3.2 on p. 9 of our report.

We further note that the replacement work will allow capacity limitations to be addressed at the same time and will reduce the level of risk in high-risk areas if the work is prioritised accordingly and we note that a "priority factor" will be used, based on addressing areas with the worst combination of leaks, UAFG and supply problems.

For these reasons, we consider the proposed rate of mains replacement is well supported and prudent.

²² Source of figures: slide 47 in presentation received at October meetings, converted to FY 2010 dollars.

²³ See p. 22 of the Plan.

²⁴ This can be seen in the UAFG and leak reduction charts on p. 24 of the Plan, the former being linear and the latter a curve, the leak escalation being applied only to the leaks.

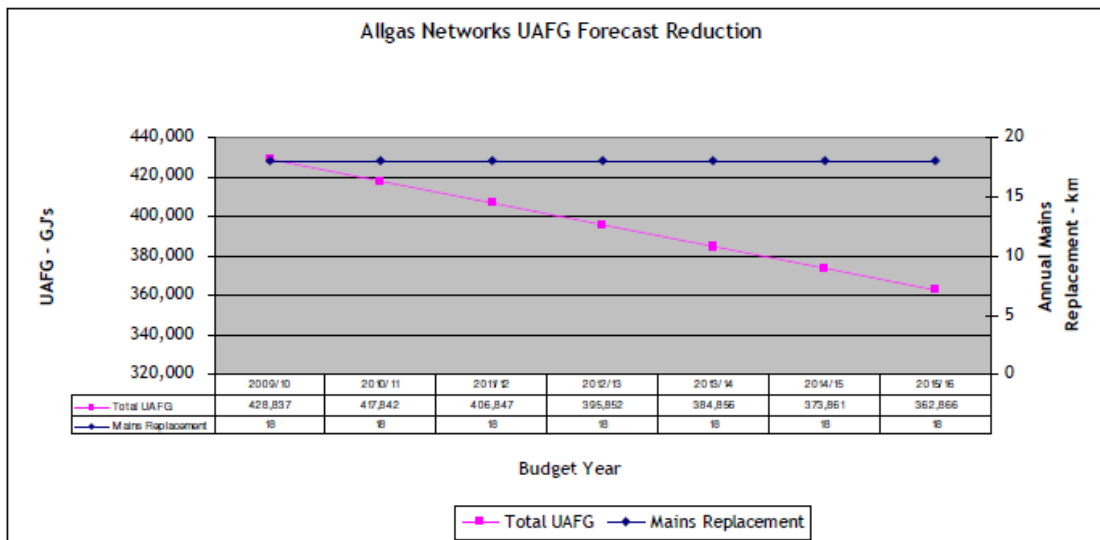
Cost

In relation to the cost of the work we note that the proposed length of replacement over the next period of 90 km, combined with the estimated cost of \$21.4 m, implies an average cost per metre for the work of \$238, compared to the rate achieved in FY 2010 of \$[c-i-c] per metre. Again, however, caution is needed in making comparisons of this type as the work may be carried out in different areas and as there have been significant increases in the cost of this type of work in the gas industry generally.

Noting that the work is contracted out competitively, we consider the cost estimate to be reasonable for the work foreseen and thus conclude that the proposed mains replacement expenditure is both prudent and efficient.

Resulting Level of UAFG

APT Allgas’s resulting projection of the level of UAFG is shown in the following graph, taken from p. 24 of the *Mains Replacement Strategic Plan*.



Based on this forecast and the volume forecasts provided in the RIN, we calculate the level of UAFG in percentage terms to fall from 4.1% in FY 2011 to 3.4% in FY 2016.

Meter Replacement

APT Allgas has prepared a business plan that sets out its proposed meter change programme.²⁵ Meters with a capacity of less than 25m³/hr are required to be replaced at the end of their nominated life or a sample tested to extend the field life of the meter family involved. Should a meter family fail the sample test regime, all such meters are to be removed then refurbished or replaced.

Meters with a capacity greater than 25m³/hr are given a fixed 10-year life. After that, they are repaired or refurbished and recalibrated and then reinstalled. Although not clearly stated, we assume that a number will need to be replaced.

We were provided with information on the quantities of meters installed, their age profiles and the volume of work estimated in the next period.

²⁵ Attachment 4.8 to the AAI (*Capex and Opex Business Plans*), “Meter Change Program”.

We noted that the proposed expenditure does not include the replacement of any meters supplying customers with consumption in excess of 10 TJ p.a.

We reviewed the data and considered that the expenditure projection was reasonable for the work requirement.

Other System Assets

The remaining \$2.6 m of the replacement expenditure estimate covers other system assets – pressure regulating stations, equipment at gate stations, etc.²⁶ Details were not provided but the level of expenditure in total appears reasonable for a network of this size and so the expenditure was not investigated further.

4.4 Augmentation Expenditure

Augmentation expenditure of \$10.5 m is proposed in the next period compared with \$6.5 m in the current period.

The business states in its submission (p. 48) that several network capacity issues have been identified and that six projects identified in the submission are proposed. We were informed, however, that one of these – the Broadbeach High Pressure Polyethylene Augmentation Project – will be completed in the present period.

Of the remaining five, the two most significant are the “Augmentation of Existing High-pressure Steel Network supplying Surfers Paradise and Broadbeach” (\$2.4 m) and the “South Coast Supply Project Stage 2” (\$7.4 m). The business justifies both on the ground of increasing demand and security of supply. We reviewed the data supplied in the business cases and noted that the analyses predict that pressures will drop below reasonable levels in the first case during FY 2013 and in the second case during FY 2016 and on that basis we considered the expenditure prudent.

The remaining work totals only \$0.8 m and was not examined further, other than to note that it appeared prudent.

The cost estimates for all projects were reviewed and appeared reasonable, subject to the removal of allowances for contingencies. (The subject of contingency allowances is discussed in section 4.7 below.)

4.5 Non-System Expenditure

Expenditure of \$7.4 m is proposed under the heading “non-system expenditure”. The submission (p. 51 *et seq*) identifies it as related to IT systems and software, motor vehicles and plant and equipment that are not part of the distribution network.

IT Systems

Four IT projects are proposed: upgrading of IT applications (\$0.4 m), upgrading and renewal of IT infrastructure (\$0.4 m), “road map” initiatives (\$3.6 m) and “knowledge management” (\$0.6 m), a total (in nominal dollars) of \$4.9 m.

Business cases were provided for these projects and we noted that they discussed need, options and timing and that cost estimates were presented.

²⁶ See footnote 22.

The forecast expenditure relates to equipment and systems that we consider normal for a business of this type. The business's planning for IT systems appears to be suitable and we consider the capital expenditure prudent and efficient.²⁷

We noted, however, that the IT project estimates presented in the business cases include contingency allowances of 15%. The details are not fully clear but it appears that an allowance of 15% is applied consistently to IT projects, other than to a residual group of them. For reasons we discuss below we do not consider the incorporation of general contingency allowances in expenditure estimates for regulatory purposes to be appropriate.

Other Items

Expenditure of \$0.9 m is proposed for upgrading of the SCADA system and \$1.6 m is proposed for miscellaneous items (both figures in nominal dollars).

Conclusion

Subject to the removal of the contingency allowances, we consider the non-system capital expenditure prudent and efficient but comment further in section 6.6 on the need for the resulting benefits to be considered in the operating expenditure projections.

4.6 Cost Estimates and Unit Rates

The cost-effectiveness of the expenditure reviewed in the preceding parts of this section of the report rests heavily on the reasonableness of the business's unit rates and cost estimates and they were therefore a subject of discussion at our meetings.

We have already noted in this context that the business out-sources its work competitively and that it tests its rates in the market periodically.

We satisfied ourselves that the rates so stated are, as far as we can determine, carried into the estimates.

We noted that the rates discussed are inclusive of the application of indirect costs and other capitalised overheads.

We found no evidence of contingency allowances having been applied to expenditure estimates other than in the case identified in section 4.5 (IT expenditure).

4.7 Contingencies, Escalation and Indirect Costs

Contingency Allowances

Whilst it is normal to add a contingency allowance to estimates that are put to a board of directors for approval for expenditure, we do not consider it appropriate for non-specific contingency allowances to be added to expenditure estimates in regulatory submissions for the following reasons.

- (a) The allowances constitute, in effect, a provision.
- (b) Whilst a contingency allowance may need to be called upon in some instances, such allowances are unlikely to be called upon generally, or to their full extent; and to argue that they would is to say, in essence, that the business concerned is unable to

²⁷ There is a discrepancy in the case of the "road map" initiatives as, in the business case, the project is shown commencing in FY 2013 rather than in FY 2012 as shown in the capital expenditure presentation of 25 October 2010. However, the matter is not material.

estimate its costs accurately or that it does not wish any risk of cost overruns to remain.

Provisional sums that are included in cost estimates to deal with specific matters that will arise but which cannot be quantified are a different matter and should be treated on their merits.

A further point is that the normal business risks that a network business ought to bear (and that are reflected in the permitted cost of its capital) should not be transferred to users. This is particularly important in a monopolistic situation where the regulator has a role to play as surrogate for a market, thus preventing a cost-plus culture prevailing in the monopoly service provider with its accompanying inefficiencies.

We would expect APT Allgas to have sound forecasting and budgeting processes, to refine them periodically and to be capable of producing estimates that prove, in the event, to have been accurate.

Based on the material provided and the points made above, we see no reason why any general contingency or other such general allowance ought to be agreed to for APT Allgas' capital expenditure, as it has not been established that it is necessary.

We do not have sufficient information to calculate the amount to be removed, although we have estimated it for the purpose of our conclusion in section 4.9. We suggest that the business should be asked to re-state its expenditure forecast without contingency allowances.

Real Cost Escalation

The business has applied an escalator to its capital expenditure projections to reflect expected increases in its costs in real terms. It states that the escalator for the next period was provided by Access Economics (see p. 102 of its submission). It appears that each cost element has been escalated using a rate applicable only to labour. The escalator is applied in each year of the next period.

We consider that separate rates ought to be derived for and applied to each main element of expenditure, *viz.* general labour, electricity-gas-and-water labour, network materials (mainly polyethylene piping), general materials and, in relation to capital expenditure, contract labour for the construction sector.

Indirect Cost Allocations

Indirect costs (overheads related to capital works) appear to have been added to the direct costs of most capital works at a rate of 26.4%.

It is normal for indirect costs associated with putting new fixed assets into service to be recognised as a cost component and added to the regulatory asset base. However, it is desirable that the rate of application of such costs be verified.

It is an accounting matter to confirm whether the proposed level of capitalisation of overheads is reasonable. If an investigation finds it not to be so, the application rate should be reduced accordingly.

4.8 Other Considerations

Independent Review

We have already noted in section 3 of this report that the business engaged PB to review its capital expenditure forecasts. In relation to capital expenditure in the next period, PB

reviewed the business's procurement and planning policies and certain major projects and programmes. It did not review unit rates.

PB notes (p. 9 of its report) the business's policy that competitive tenders are sought for all goods or services with a value of more than \$100,000 or where there is a material risk to the business.

In relation to planning processes PB states:

It is the opinion of PB that the planning process used by Allgas for capital works is efficient and effective, and it provides a good balance between the competing requirements of risk management, operating efficiency, capital investment, revenue and regulatory compliance.

In relation to cost estimation, PB states (p. 17):

The project costs estimated by Allgas follow the guidelines established in the Allgas tendering process. It is PB's opinion that the tendering process is in accordance with the good industry practice and encourages low sustainable costs for the projects. Almost all of Allgas's projects is [sic] outsourced through competitive tendering which promotes efficient market tested pricing of the projects.

Appropriate allowance has been made for capital projects that are required to maintain the integrity of services and comply with the requirements of the regulatory authorities. These projects include mains replacement programs, meter change programs and projects deferred in the current AA period...

...PB is of the opinion that the justification of works in proposed capital expenditure program and the reasonableness of estimates in it, meet the requirements of NGR rule 79.

In relation to the major projects and programmes that it reviewed – augmentation of supply to Surfers Paradise and Broadbeach, South Coast supply augmentation stage 2 and the meter change programme – PB states (p.20):

Based on the review of significant projects selected, PB is of the opinion that the justification of works in [sic] proposed capital expenditure program and the reasonableness of estimates in it, meet the requirements of NGR rule 79 and Rule 74.

We did not consider PB's conclusion that the expenditure conforms to the Rules as that is a matter for the AER to determine.

We noted that PB did not appear to have considered the reasonableness of application of contingencies in the estimates or the reasonableness of allocation of overheads.

We accepted, however, that the PB report presents an independent opinion that, after investigation, the reviewer found the forecast capital expenditure to be prudent and efficient.

Other Considerations

In concluding our review of capital expenditure in the next period, we took into account the business's documented current practices and the PB report just discussed.

We noted that the business had submitted comprehensive expenditure plans supported by business cases and transparent cost calculations, most of which were made available to us at the outset of our work.

We noted that the work is mostly contracted out competitively.

We received and relied on explanations given by the business in its submission and at our meetings.

We took into account the circumstances in which the business expects to operate in the next period.

In essence, we sought, by these methods, to confirm the necessity, optimality and cost effectiveness of the capital expenditure made in the present period and, in general, we were satisfied by the information received in these respects.

As a result, we have concluded that the work foreseen is well supported, except in those cases that we have mentioned earlier in this section of the report.

4.9 Conclusion

Taking all matters reported in this section into consideration, we conclude that APT Allgas's proposed capital expenditure in the next period is prudent and efficient, subject to the adjustments shown in Table 4.3.

Table 4.3: Recommended Level of Capital Expenditure in Next Period (\$2010 m)

	FY ->	2012	2013	2014	2015	2016	Total
APT Allgas' proposal		24.5	23.9	25.5	25.5	26.0	125.5
Less recommended reductions							
<i>Removal of contingency allowances:</i>							
IT projects (15%) a/		0.3	0.2	0.1	0.0	0.0	0.6
Recommended level of capex b/		24.2	23.8	25.4	25.5	25.9	124.9

a/ Applied to 80% of the expenditure in this category in the absence of full information.

b/ Subject to the qualifications in the main text. Figures may not add due to rounding.

The adjustment shown in the table (in relation to the contingency allowances in IT projects) is an estimate as cost details were not fully available and we were unable to determine the correct calculation. The business should be asked to re-submit its expenditure proposal exclusive of contingency allowances and the other adjustments if our recommended adjustments are adopted by the AER.

No adjustment has been incorporated in the table for the recalculation of real cost escalation or for any correction found necessary in the rate of application of indirect costs and overheads, although that may be necessary, as noted in section 4.7.

In all cases, capital contributions or recoveries by or from other parties need to be deducted from the gross expenditure in accordance with the applicable regulatory accounting policies.

5 Operating Expenditure in Present Period

5.1 Summary of Expenditure

Although we are not required to assess APT Allgas's operating expenditure in the present period other than in terms of the reasonableness of its level in the "base year" (*viz.* FY 2010) – a matter that we discuss in section 6 of this report – we considered it necessary to review the expenditure in the present period briefly to provide the setting for our review and operating expenditure in the next period.

Ownership of the business changed in November 2006 when the APA Group purchased it from Energex. Amongst other things, this resulted in the business's adopting a different categorisation of operating costs from that used under Energex's ownership. The business also introduced new accounting systems in FY 2010. It presents a comparison between its approved costs and incurred costs in the present period but states that the "categorisation of historical costs is somewhat tenuous and should be regarded as indicative only."²⁸ The comparison of operating expenditure is summarised in Table 5.1.

Table 5.1: Operating Expenditure in Present Period (\$2010 m)

		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total
Operating & Maintenance	Approved	13.0	14.1	13.1	12.5	12.2	64.8
	Incurred	13.3	10.5	10.2	13.4	14.2	61.7
	Variance	0.3	(3.6)	(2.8)	0.9	2.0	(3.2)
Marketing	Approved	0.6	0.6	0.6	0.6	0.6	3.1
	Incurred	0.0	2.8	3.0	1.3	1.1	8.2
	Variance	(0.6)	2.1	2.4	0.7	0.5	5.1
UAFG	Approved	1.6	1.5	1.4	1.4	1.4	7.3
	Incurred	2.1	2.1	2.3	2.2	2.3	11.0
	Variance	0.4	0.6	0.9	0.8	1.0	3.8
Total	Approved	15.3	16.2	15.1	14.5	14.1	75.2
	Incurred	15.4	15.4	15.6	16.9	17.6	80.9
	Variance	0.1	(0.8)	0.5	2.4	3.5	5.7
	Variance (%)	0.7%	-5.2%	3.4%	16.6%	24.8%	7.5%
Total excl UAG	Approved	13.6	14.7	13.7	13.1	12.7	67.9
	Incurred	13.3	13.3	13.3	14.7	15.3	69.8
	Variance	(0.3)	(1.5)	(0.4)	1.6	2.5	1.9
	Variance (%)	-2.4%	-10.1%	-3.0%	12.2%	19.8%	2.8%

Source: Submission, p.95 Table 8.3 converted to \$ FY 2010. Figures may not add due to rounding.

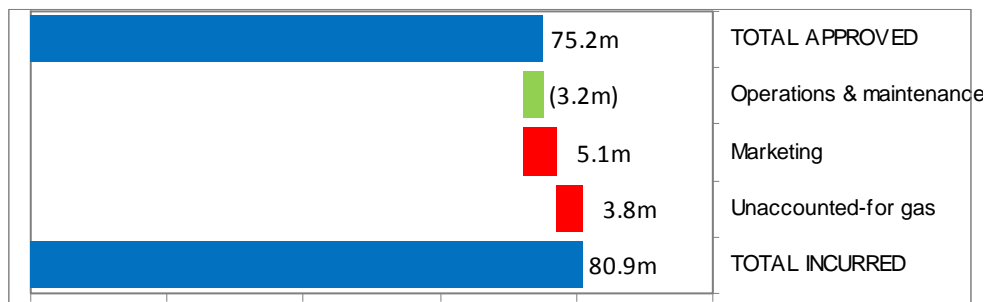
APT Allgas provided historical costs in the same categories as those used for its forecast costs in the next period. Whilst a comparison with approved costs is not available under those categories, we have analysed them in establishing expected trends for expenditure in the next period and we discuss them further in section 6.2 of this report.

²⁸ Submission, p.94.

Variations

The business estimates the total operating expenditure in the present period to be \$80.9 m, \$3.2 m (7.5%) above the \$75.2 m approved for the period by the QCA.²⁹ The variance is only 2.8% when the cost of UAFG is excluded. The variance from the approved level is minimal but largest in the final two years of the period. Figure 5.1 shows the variances by expenditure category.

Figure 5.1: Variances between Incurred and Approved Opex (\$2010m)



The major contributors to the variances have been explained as follows.

Marketing Expenditure

The largest variance was in marketing expenditure. The business states that it has increased marketing expenditure significantly since the change in ownership because marketing was previously undertaken as part of the wider Energex business, which included gas retail and electricity retail and distribution activities. We note from Table 8.2 in the submission that there appears to have been several changes in the classification of expenses between FY 2009 and FY 2010 and that network development costs in FY 2008 and FY 2009 that were allocated to marketing under the previous categorisation have been allocated to operations and maintenance from FY 2010.

Operating and Maintenance Expenditure

Operating and maintenance expenditure is expected to be below the approved level by \$3.2 m in the period. It was below the approved level in FY 2008 and FY 2009 but is expected to be above it in the last two years of the period.

We note that operations and maintenance expenditure increased by \$3.2 m (31%) from FY 2009 to FY 2010. This is the period in which APT Allgas's cost classifications and accounting systems were changed, so some of the variance may be attributable to those factors.

We further note that total expenditure, excluding UAFG, increased by only \$1.4 m between FY 2009 and FY 2010.

In addition, we note that there was some increase in operations and maintenance costs due to changes in technical standards that required additional safety assessments, the costs of which appear in FY 2010.

Expenditure on Unaccounted-for Gas

The approved level of expenditure for UAFG in the present period was based on a continued downward trend in its level but that did not eventuate, the level remaining substantially

²⁹ The variance reduces to 2.8% of the cost of UAFG is removed.

unchanged over the period, as discussed in section 4.3 of this report. Changes in gas prices may also have affected this item but we considered only the volumetric impact in our review.

5.2 Observation

We discussed the expenditure during our meetings and have taken the observations noted above into account in our further reviews in the remaining sections of this report. We note that accounting system changes mean that the reported costs under the various categories in the early part of the present period are likely to be unreliable and that the variances from year to year are not necessarily reported correctly in our summary, as the re-categorisation of expenditure may have influenced the comparisons. Other than in these respects, we have no comment to make on the expenditure.

6 Operating Expenditure in Next Period

6.1 Summary of Proposed Expenditure

The proposed operating expenditure in the next period is \$99.3 m compared with the estimated level of \$80.9 m in the present period, an increase of 22.7%. A summary of the expenditure is shown in Table 6.1. APT Allgas has separated the expenditure into “controllable” and “non-controllable” groups, claiming that it has little or no direct control over the former.³⁰ We note that whilst it may have little or no control over the need to incur costs, it will have control, in most instances, over the quantum of the costs, depending on the efficiency with which the work is carried out. In addition, corporate costs are allocated by a related party and ought to meet a test of efficiency before being accepted.

Table 6.1: Operating Expenditure in Next Period (\$2010 m)

FY ->	2012	2013	2014	2015	2016	Total
Controllable Costs						
Operations & maintenance	10.2	10.3	10.4	10.5	10.5	51.9
Marketing	1.7	1.7	1.7	1.7	1.8	8.5
Administration & planning	0.7	0.9	0.9	1.1	1.1	4.6
	12.6	12.9	13.0	13.3	13.4	65.0
Non-Controllable Costs						
Customer services	0.9	0.9	0.9	1.0	1.0	4.7
Unaccounted-for gas	2.5	2.6	2.8	2.8	2.8	13.5
Government charges	0.5	0.6	0.6	0.6	0.6	2.8
Metering & billing	1.2	1.2	1.2	1.3	1.3	6.1
Corporate costs	1.4	1.4	1.4	1.4	1.5	7.1
	6.4	6.6	7.0	7.1	7.2	34.3
	19.0	19.5	20.0	20.3	20.6	99.3

Sources: Submission, p. 137, Table 8.17 and RIN, converted to \$ FY 2010.

Figures may not add due to rounding.

Basis of the Forecast

“Base-Year Roll-Forward” Methodology

APT Allgas has used the “base-year roll-forward” methodology to forecast its operating expenditure in the next period, except for the calculation of UAFG and the leak repair cost component of operations and maintenance expenditure. Its submission states that it has followed this methodology by:

- selecting an appropriate base year in which to measure costs;
- modifying the base-year costs to ensure that all costs required for future operation of the network are added to them and all costs in the base year that are not relevant to the future operation of the network are removed;

³⁰ Submission, p.89.

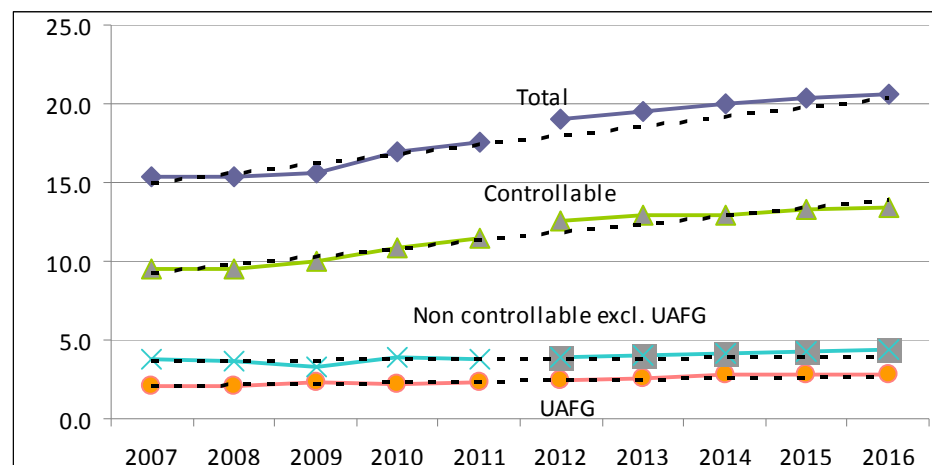
- modifying the costs to reflect changed consumer numbers and additional network facilities required because of additional consumers and demand;
- modifying the costs to reflect changes in input costs expected over the next period; and
- modifying the costs to reflect appropriate productivity improvements.

The base year chosen is FY 2010. The business states that this year was chosen as it reflects the most recent financial information and includes “realised benefits of the synergies that the APA Group has obtained through joint management of the APT Allgas and Envestra Queensland networks”.³¹

Movements from Present Level of Expenditure

Figure 6.1 shows the trend of total operating expenditure by category over the present period and the next period.

Figure 6.1: Trend in Expenditure by Category (\$2010 m)

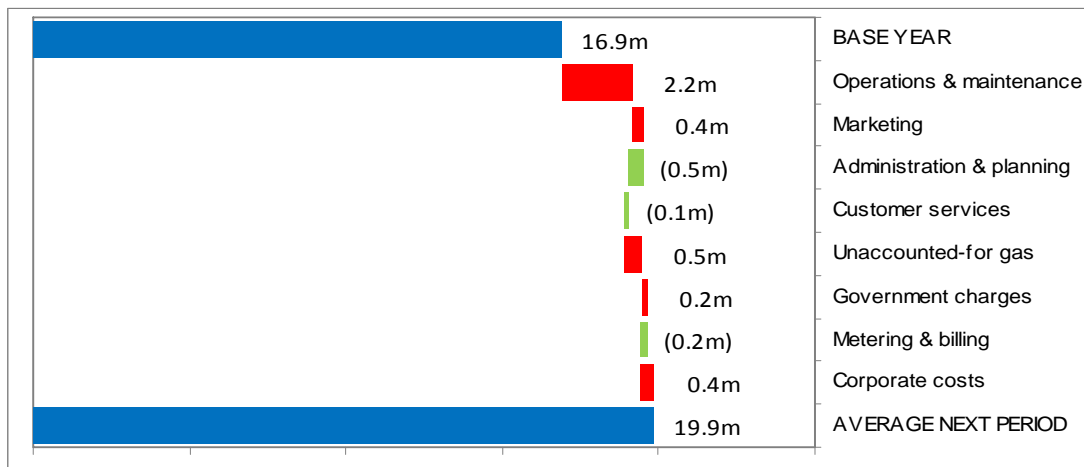


The figure shows that total expenditure is projected to increase above the trend line at the start of the next period but then reduce over the period. We note that there is a steep rise in expenditure between FY 2009 and FY 2012 – an increase from \$15.6 m to \$19.0 m or 22%.

We further note that average annual operating expenditure in the next period is \$19.9 m p.a. compared with the base-year total of \$16.9 m, an increase of 18%.

Figure 6.2 shows the contribution of changes in the various expenditure categories to the change between the base-year level and the average level in the next period. The increase in operations and maintenance expenditure accounts for about 75% of the total. Increases in marketing, UAFG, corporate costs and other items are of a lesser amount and are offset partially by reductions in the projected cost of administration and planning and in some other items.

³¹ Submission, p.103.

Figure 6.2: Increases from Base-Year Level to Next Period (\$2010 m)

6.2 Base-Year Level of Expenditure

Base-Year Costs

Expenditure in the base year (FY 2010) and preceding years, together with a summary of the adjustments made by the business, is shown in Table 6.2. The column labelled “FY 2010 Adjustments” shows the adjustments made by the business to remove non-recurrent expenditure and income and the column “FY 2011 Adjustments” shows the further adjustments made by the business to project the expenditure to FY 2011 for carrying into the next period.

The “Adjusted Base Year” column shows the resulting base-year figure used by the business in its projections in comparison with the expenditure approved by the QCA for the base year (FY 2010).

Table 6.2: Base-Year Level of Expenditure (\$ FY 2010 m)

FY ->	2007	2008	2009	2010	Adjustments 2010	2011	Adjusted Base Yr
Controllable Costs							
Operations & maintenance	8.9	5.8	5.2	8.2	(0.1)	0.3	8.4
Marketing	0.0	2.7	3.1	1.3	(0.3)	0.0	1.0
Administration & planning	0.6	1.0	1.7	1.4	(0.1)	0.0	1.3
	9.5	9.5	9.9	10.9	(0.5)	0.3	10.7
Non-Controllable Costs							
Customer services	1.1	0.1	0.0	1.1	(0.3)	0.0	0.8
Unaccounted-for gas	2.0	2.1	2.3	2.2	0.0	0.0	2.2
Government charges	0.3	0.5	0.3	0.4	0.0	0.0	0.4
Metering & billing	1.7	1.7	1.7	1.4	0.0	0.0	1.4
Corporate costs	0.8	1.4	1.3	1.0	0.0	0.4	1.4
	5.9	5.7	5.6	6.1	(0.3)	0.4	6.1
Total Incurred	15.4	15.3	15.6	16.9	(0.8)	0.7	16.8
Total Approved	15.3	16.2	15.1	14.5			14.5

Sources: Submission, p. 137, Table 8.17, the RIN and supplementary table provided by APT Allgas.
 Figures may not add due to rounding.

Expenditure in the base year, after adjustment, is 7.5% above the level in the previous year and 16% above the approved level, although we note that the level approved for FY 2010 was

below that for FY 2008 and FY 2009. As noted in section 5.1, the business's costs changed materially following the ownership change and we accept that the reported costs in the earlier years are not necessarily a reliable indicator of present and future costs for the business.

There would appear to be no reason for the business to have increased its operating expenditure in the present period beyond the amount recoverable without commercial justification.

On balance, after considering these factors, we accepted that the proposed base-year level of expenditure (as adjusted by the business) reasonably reflects the business's present costs.

Efficiency of Base-Year Costs

The AER's Criterion

The AER advises us that the test it is required to apply for the recovery of operating expenditure by a gas distributor is set out in Rule 91(1) as follows:

Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.

In section 8 of its submission, APT Allgas sets out its claim that it is operating efficiently. We examine each of its supporting arguments in the following sections.

Outsourcing

APT Allgas undertakes the operation of the network itself but engages contractors to carry out some activities. The contractors are engaged through public tenders called at periodic intervals to ensure that competitive market prices continue to be achieved.

Benchmarking

Internal Review

Benchmarking of operating expenditure can be helpful if the characteristics of networks and the conditions under which they operate are similar or can be normalised. Gas networks tend to have a much wider range of energy and customer densities than electricity networks with the result that the information presented from benchmarking needs to be interpreted carefully and, at best, will present only a broad indication of cost performance. It is important to identify network characteristics that may result in dissimilar cost structures that suggest that a further detailed "bottom-up" analysis of costs should be undertaken.

The business has undertaken a comparison of its operating expenditure benchmarks for FY 2010 with three other companies: Envestra Queensland, Jemena (New South Wales), and ActewAGL (ACT). This is shown on pp. 103-113 of the submission. The analysis shows that it has similar costs (excluding UAFG) per km to ActewAGL and Jemena but significantly lower costs than Envestra Queensland. Excluding UAFG, operating costs per customer are higher than ActewAGL and Jemena but lower than Envestra Queensland.

We note that the sample used by the business is small and that it excludes the Victorian and South Australian gas distributors; the business acknowledged this point when we discussed the benchmarking with it, accepting that benchmarking of the type presented gave only a general indication of relative performance or words to that effect.

Parsons Brinckerhoff Report

Attachment 4.5 to the submission comprises a review of capital and operating expenditure in the present period and the next by PB. In relation to operating expenditure, PB benchmarked operating cost performance against two other companies – Jemena and ActewAGL – to opine on the efficiency of operating expenditure in the present period and then projected these

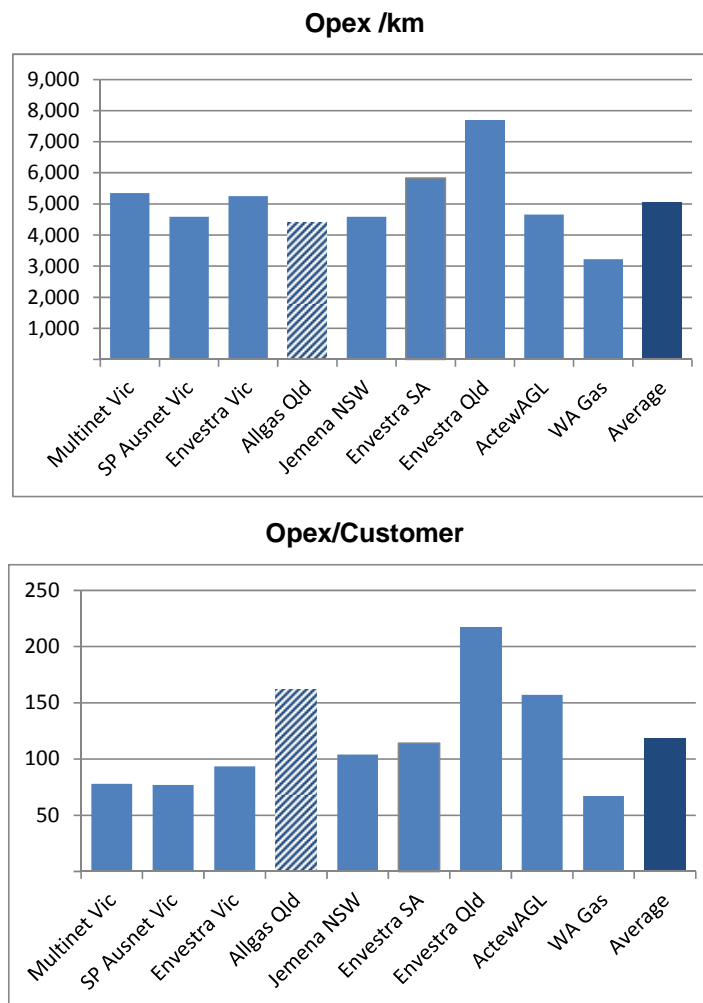
measures forward for the next period to opine on efficiency in it. We note that the benchmarking is of a very small sample and we thus did not consider it appropriate to rely on the report's findings.

Our Assessment

We undertook our own benchmarking assessment, using data for FY 2009, the most recent year for which data from all distributors is available and a year close to the year chosen by APT Allgas as its base year.³²

We calculated averages for two indicators – cost per km and cost per customer basis – for nine distributors, as shown in Figure 6.3.

Figure 6.3: Opex Performance Indicators in FY 2009



The analysis shows that in FY 2009, APT Allgas had below-average operating expenditure per km and above-average operating expenditure per customer of the businesses compared.

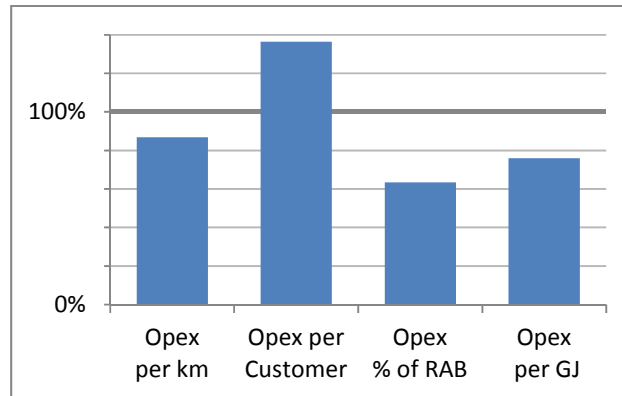
We also calculated the relative performance of the business by calculating APT Allgas's performance as a percentage of the average cost of all the businesses compared and the

³² The data were sourced from a report by Marksman Consulting, prepared for Envestra as part of its regulatory submission. However, we made no other use of that report in reaching our conclusions in relation to APT Allgas and disclose none of the contents of that report in our own.

results are shown in Figure 6.4. The analysis shows that APT Allgas's costs are below the average on three of the four measures by between 13% and 37% and above the mean by 36%.

We acknowledge that APT Allgas's operation is small, with low customer and energy density, and that those factors may account for its high cost per customer.

Figure 6.4: Relative Opex Performance in FY 2009



We therefore conclude that benchmarking does not indicate that APT Allgas's base-year operating expenditure is sufficiently outside the expected range to require further detailed analysis from a "bottom-up" perspective.

Conclusion on Base-Year Level of Expenditure

On balance, after considering these factors, we accepted that the proposed base-year level of expenditure (as adjusted by the business) reasonably reflects the business's present costs, noting that

- (a) the selected base year is representative;
- (b) the business has made adjustments to remove non-recurring costs;
- (c) our analysis of benchmarking data for FY 2009 – the most recent year for which data from all companies was available to us – indicates that APT Allgas's operating expenditure is consistent with industry averages; and
- (d) although brief, APT Allgas's own benchmarking analysis supports our conclusion.

6.3 Unaccounted-for Gas

We discussed UAFG and various considerations related to it in section 4.3 of this report and recommended that the AER accept the level of UAFG proposed by the business for the next period.

We do not comment on the price of gas purchased to replace losses, as that is not a technical matter.

6.4 Roll Forward of Base-year Costs

APT Allgas has applied both growth- and cost-related escalators to its base-year costs when rolling them forward to the next period.

Adjustment for Growth

Adjustments have been applied by the business to account for the impact of customer growth and network growth on certain costs. Those to which customer growth has been applied as an escalator are customer services, meter reading, the provision of call-centre services, the

repair of leaks at meters and costs associated with meter maintenance. Costs associated with instrumentation, pressure control, pipeline maintenance (in proportion to steel pipeline length), the leakage survey, patrols, surveillance and repairs to damaged assets have been escalated in proportion to forecast network growth.

We consider these bases of cost escalation for growth reasonable.

Adjustment for Real Cost Escalation

APT Allgas has applied escalators to its operating expenditure projections to reflect expected increases in its costs in real terms. It states that real cost escalators for the next period were provided to it by various parties (see p. 102 of its submission) and that each cost element has been escalated using the rate concerned. However, we note that apart from UAFG (where the escalator is a gas price) and regulatory matters (which we do not review), the escalator applied is a labour-only rate.

We consider that separate rates ought to be applied to each main element of expenditure, viz, general labour, electricity-gas-and-water labour, network materials (mainly polyethylene piping), general materials and, in relation to capital expenditure, contract labour for the construction sector.

All other changes to the base-year costs are detailed as step and scope changes and are reviewed in the following sections.

6.5 Evaluation of Step Changes and Scope Changes

APT Allgas has factored several “step and scope changes” into its projected level of operating expenditure, claiming that they are not reflected in its present costs or in its base-year level of expenditure. The net effect of the changes is to increase expenditure by \$7.2 m over the period, as summarised in Table 6.3.

Table 6.3: Step and Scope Changes (\$2010 m)

YE 30 June	2012	2013	2014	2015	2016	Total
Appt of revenue protection officer	0.05	0.05	0.05	0.05	0.05	0.26
Replacement of lids on regulator stations	0.04	0.02	0.02	0.00	0.00	0.08
Bridge crossing maintenance	0.16	0.16	0.17	0.17	0.17	0.83
Monitoring of cased pipelines	0.24	0.24	0.25	0.27	0.27	1.26
Market rule changes	0.05	0.05	0.05	0.05	0.05	0.26
Electricity-to-gas changeover	0.39	0.39	0.40	0.40	0.41	1.99
New technology dev. & deployment	0.25	0.26	0.26	0.26	0.27	1.30
Extension of leakage survey	0.56	0.53	0.50	0.48	0.46	2.53
Access arrangement contractors	(0.59)	(0.59)	(0.60)	(0.43)	(0.43)	(2.63)
IT Costs - roadmap initiative	0.00	0.15	0.16	0.17	0.18	0.66
Knowledge management	0.00	0.15	0.15	0.15	0.16	0.61
	1.16	1.42	1.40	1.59	1.59	7.16

Source: business cases. Figures may not add due to rounding.

The changes are outlined on pages 114-125 of its submission and in more detail in the business cases that accompany the submission. Individual project costs have been calculated within the business cases in FY 2010 costs and real cost escalation applied before inclusion in the submission. However, before proceeding to assess these items, we first set out our method of evaluation.

Introduction

In regulatory price reviews, operating expenditure forecasts prepared by a business are typically based on operating expenditure levels in the previous period (often in a particular base year) with specific cost increases identified as “step changes” or other cost increases. These are usually additional costs but may be reductions.

Before proceeding to our evaluation of APT Allgas’s costs, we set out below the general considerations in relation to our review of such costs and the criteria we have applied when determining whether such “step changes” or other cost increases are prudent and efficient.

No Implied Interpretation of the Rules

In setting out these considerations and criteria, our purpose is solely to base our assessment on the prudence and efficiency of the proposed expenditure as is required by our terms of reference. We do not attempt to interpret the Rules, as we do not consider it our place to do so.

General Considerations

In a competitive market, businesses normally seek to minimise their own costs and do not add to them or pass them on to customers unless they are satisfied that there is a benefit to customers in terms of the product delivered, that a price increase will not jeopardise sales or the viability of the business, that a benefit will accrue to the business in terms of efficiency or, ideally, all of these things. Regulation presumably ought to incentivise natural monopolies in a similar way. Second, businesses are dynamic, with variations occurring from year to year. Such variations ought not to form the basis of a claim for a “step change”, as the effect of that would be to allow costs to be passed on readily in contravention of the efficiency objective implicit in the regulatory framework.

We consider that a methodology that starts with a base year and then applies cost escalators, workload escalators, “step changes” and other cost increases may lead to a projection of future costs that is above an efficient level unless there is also explicit consideration of (and, where appropriate, allowance in the projections for) business efficiency improvements.

An experienced consultant reviewing such expenditure would normally be mindful of the following considerations:

- (a) whether a demonstrated need for expenditure has been identified in the business’s submissions and supporting documentation;
- (b) whether it is matched to new or altered regulatory obligations (e.g., to technical standards, safety standards, performance or security-of-supply requirements or other statutory or licence obligations);
- (c) whether it aligns with the business’s broad policies regarding, for example, maintenance practice, risk assessment and management or the like that have a material impact on operating expenditure;
- (d) whether benefits, quantifiable or not, have been identified in the documentation;
- (e) whether, if quantifiable, the benefits were so quantified in terms of amount and time of occurrence or at least likely time of occurrence;
- (f) whether, if quantified, evidence has been presented sufficient to demonstrate that the solutions chosen were based on comparative studies and were demonstrated to be the least-cost options for meeting the need;
- (g) whether, if the identified benefits had been said to be in the form of improvements in service levels, reliability or the like, they are reflected in projected improvements in the corresponding service targets;
- (h) whether a time lag in the appearance of benefits ought to be recognised in particular cases and, if so, to what extent; and

- (i) whether there are any other relevant factors to be considered.

Criteria Applied

The criteria that we have applied when considering the prudence and efficiency of “step changes” and other cost increases are set out below. They are for application in parallel with the demonstration by the business: (a) that it has adjusted its base-year expenditure to remove items that were abnormal or will clearly not recur and to add items that would normally be present; and (b) that the “step changes” and other cost increases do not duplicate any allowances for workload escalation or inflation in the next period that have been applied separately.

For a “step change” that results in an increase in costs (or any other cost increase) to be considered prudent and efficient, the business should have demonstrated that:

- (a) it is related to a fundamental change in the business environment arising from external factors; or
- (b) it is attributable to the imposition of new or changed obligations due to external factors including, if relevant, mandated improvements in service levels or safety; or
- (c) it is of a type that will improve (as opposed to maintain) service levels voluntarily, as opposed to their improvement being mandated – in respect of which customers’ willingness to pay for the improved service should be demonstrated (an extension of the first and second criteria); or
- (d) it will bring cost savings or benefits in respect of which the business should be able to demonstrate that: (i) it is continually looking for better ways of using its resources and improving its processes and systems to improve service levels or achieve cost efficiencies; (ii) it has defined the savings and benefits in terms of their nature and the expected time if their realisation; and (iii) where the savings and benefits are quantifiable, they have been quantified in sufficient detail for cost-benefit analyses to be prepared and that the cost-benefit analyses justify the investment; or
- (e) it is a material, additional expenditure that will enhance asset performance or mitigate identified risks associated with an existing activity and is consistent with the actions of a prudent operator in this respect.

Where it is claimed by the business that the “step changes” or other cost increases are justified by benefits that will accrue later, it should have been demonstrated by the business that the delay in the benefit stream would not be sufficient to render the additional costs unjustified.

Alternatively, if the costs do not meet any of these criteria, the business should have demonstrated that it would continue to operate efficiently as a whole, despite the cost increase.

6.6 Assessment of Step and Scope Changes

In this section, we assess APT Allgas’s step and scope changes.

Appointment of Revenue Protection Officer

This step change is for the appointment of a full-time dedicated officer to monitor and investigate metering anomalies at a cost of \$50,000 p.a. The benefit is claimed to be a reduction in UAFG of \$380,000 over the period. The business says that this saving has been

factored into the calculation of UAFG over the period.³³ This meets the criterion of the expenditure being offset by savings and we consider the response prudent and efficient.

Replacement of Lids on District Regulator Stations

This project provides for the replacement of lids on “Cocon” district regulator stations. The original lids have been found to be inadequate, leading to water ingress, particularly in adverse weather, and to be a potential public hazard through buckled lids. It is proposed to replace the lids with redesigned ones. This meets the criterion of mitigation of an identified risk and we consider the response prudent and efficient.

Bridge Crossing Maintenance Programme

There are 15 crossings of rivers, creeks and railways where high-pressure steel pipelines are fixed to bridges or other structures. The proposal is to commence regular inspections of and maintenance on these installations. The estimate of \$160,000 p.a. is based on inspecting three each year and carrying out maintenance on one. The maintenance allowance is a provision but totals only about 12% of the step change. This programme meets the criteria of improving asset performance and mitigation of an identified risk and we therefore consider the project prudent and efficient.

Condition Monitoring of Cased Pipelines

This proposal is to increase the monitoring programme for approximately 300 cased steel pipelines to ensure their integrity. Practice to date has been to put certain pipes in casings but the pipes do not have cathodic protection in the casings. It is expected that the knowledge gained from this programme will enable the business to take timely action to prevent failure at the affected sites. The estimate of \$240,000 p.a. is based on the inspection of 15 sites p.a. with all “Class 600” pipelines and a sample of “Class 300” pipelines inspected over the period. We consider the programme prudent as it meets the criteria of improving asset performance and mitigation of an identified risk and we therefore consider the approach and costs efficient.

Market Rule Changes

We have not reviewed this item, as it is not a technical matter.

Electricity-to-Gas Hot Water Changeover Programme

The business plans to mitigate the trend of falling average residential gas consumption and grow the demand for gas through additional marketing, including this proposed implementation of an “existing home electricity-to-gas hot water changeover” programme.

We have not reviewed this item, as it is not a technical matter.

Development & Deployment of New Technology

In order to increase average residential gas consumption in Queensland it is planned to establish a “new technology” role to facilitate the development and deployment of evolving gas technologies into the Queensland market.

We have not reviewed this item, as it is not a technical matter.

³³ “Revenue Protection” business case, p.7 and “UAFG” business case, p. 7.

Leakage Survey and Repairs

To date, APT Allgas has performed regular leakage surveys on its pipelines and mains every five years and on designated high-risk areas annually. Consumer services are not currently surveyed, despite (we understand) their being considered part of APT Allgas's network under the Queensland Petroleum and Gas Regulations. The business proposes to extend the programme to include services and meter sets in identified areas that are deemed to be of higher risk.

The submission states that a problem exists on the network in the form of "Philmac" fittings. These are compression-type fittings, designed originally for use on water pipelines, that are prone to leakage in certain circumstances. They were used extensively on the network (mainly in service lines) before recurring problems were identified. There are no records of their location.

It is estimated that there are about 8,000 such fittings in service on the network and that 7% of them are leaking at any one time. Based on this assumption, the numbers of such leaks detected annually because of the survey is expected to be about 650 in FY 2012, decreasing annually to 487 in FY 2016.

The projected cost in the next period for this survey and repair programme is \$2.5 m, made up of \$0.2 m for leakage survey, \$0.1 m for additional meter repairs, \$0.6 m for additional service repairs and \$1.5 m for additional "Philmac" repairs.

We consider the proposed expenditure is prudent as it is an appropriate response to a known risk and will improve the business's compliance with a regulatory obligation. The approach proposed is efficient as it has identified the higher-risk areas for attention and we consider the costs reasonable, noting that the number of leak repairs can only be estimated and the actual number found may be higher or lower.³⁴

Regulatory Costs

The business has proposed cost reductions in comparison to the base year in relation to the cost of preparing its regulatory submissions but we have not reviewed this item, as it is not a technical matter.

IT Costs

IT expenditure is associated with the planned "roadmap initiative" capital expenditure projects. The expenditure (\$0.6 m for field data capture and \$0.03 m for advanced asset management) includes licence fees, maintenance costs and one additional full-time-equivalent employee for data capture. We note that some allowance for offsetting efficiencies has been made in the advanced asset management expenditure but, although efficiency improvements are claimed as a benefit for the combined projects, no other efficiency improvements have been quantified. For that reason, we do not consider the proposed expenditure efficient.

As noted earlier in our criteria for assessing step changes, benefits should be quantified and offset against costs to ensure that a net benefit exists and that a strong commercial incentive exists to undertake projects of this nature and achieve the claimed business efficiencies. We recommend that this expenditure be removed from the forecast.

³⁴ A spreadsheet provided to us after our meeting in October suggests that a further \$208,000 may be involved in this work but we have no details and it is not included in consideration.

Knowledge Management

The business intends to develop a more formal process to manage its documentation. About \$0.4 m of the \$0.6 m estimated cost is attributable to labour. We consider the work prudent, as it is good practice to document work processes properly. It is normal for projects of this nature to result in significant business efficiency improvements and this is given as one of the benefits of the proposed project. However, we do not consider the expenditure efficient as no allowance has been made for such efficiency improvements.³⁵

Conclusion in Relation to Step and Scope Changes

The adjustments we have proposed in this section of the text are summarised in Table 6.4.

Table 6.4: Recommended Adjustments (\$2010 m)

YE 30 June	2012	2013	2014	2015	2016	Total
IT Costs - roadmap initiative	0.00	0.15	0.16	0.17	0.18	0.66
Knowledge management	0	0.15	0.15	0.15	0.16	0.61
	0.00	0.30	0.31	0.33	0.33	1.27

6.7 Recommended Operating Expenditure in Next Period

A final consideration when determining a reasonable level of operating expenditure in the next period is whether adequate attention has been given by APT Allgas to the trade-off between capital and operating expenditures. We noted in this regard that account had been taken of reductions in UAFG and leak repairs arising from the continued mains replacement programme and we concluded that there was an appropriate balance between capital expenditure and savings in operating expenditure.

After taking account of the matters discussed in this section of the report, the recommended level of operating expenditure (excluding consideration of step and scope changes in relation to expenditure which was not technical in nature) in the next period that we consider prudent and efficient is \$98.1 m, made up as shown in Table 6.5.

Table 6.5: Recommended Opex in Next Period (\$2010 m)

YE 30 June	2012	2013	2014	2015	2016	Total
Opex as proposed by APT Allgas	19.0	19.5	20.0	20.3	20.6	99.3
Step change adjustments	0.0	(0.3)	(0.3)	(0.3)	(0.3)	(1.3)
Recommended	19.0	19.2	19.6	20.0	20.2	98.1

We further recommend that the business be asked to recalculate its real cost escalation by using escalation factors relating to each main element of cost incurred by the business as opposed to applying a labour cost escalation rate to all elements.

³⁵ See also the preceding item.

7 Conclusion

7.1 Opinion

Having considered the information received from the business and the factors required to be considered as summarised in this report, and based on that information, the representations made to us by the business and our own experience, our opinion in respect of APT Allgas's expenditure proposals in relation to its network is as stated below.

- (a) The level and pattern of the capital expenditure expected to be incurred in the present period is considered prudent and efficient.
- (b) The proposed level of capital expenditure in the next period is considered prudent and efficient, subject to the removal of contingency allowances (the adjustments for which are summarised in section 4.9 of the report), the reassessment of the rate of capitalisation of overheads and the following item.
- (c) The business should be asked to recalculate its real cost escalation by using escalation factors relating to each main element of cost incurred by the business as opposed to applying a labour cost escalation rate to all elements.
- (d) The proposed base-year level of operating expenditure is considered efficient.
- (e) Adjustments are recommended to several of the proposed operating expenditure "step changes". Details are given in section 6.6 of the report.
- (f) The resulting recommended level of operating expenditure in the next period is as summarised in section 6.7 of the report.
- (g) The level of unaccounted-for gas in volumetric terms that the business proposes for the next period is considered reasonable (see section 4.3).

Various matters have been noted throughout the report for the AER's consideration – for example, in relation to the reasonableness of the level of capitalisation of overheads.

7.2 Qualifications of the Reviewers

Our opinion has been formulated for and on behalf of Wilson Cook & Co Limited by Mr Jeffrey Wilson with the support of Mr Peter Cole, Mr Derek Walker, Mr Pat Hyland and Mr Bernard Ivory. Mr Wilson is a professionally qualified engineer, experienced in undertaking reviews this type. Messrs Cole, Walker and Hyland are also professionally qualified engineers and Mr Ivory is a chartered accountant and economist. All team members are experienced in the energy sector and in assessments of this type. Curricula vitae of the team members are attached.

7.3 Conditions Accompanying Our Opinion

Assessment Not an Assessment of Condition, Safety or Risk

Notwithstanding any other statements in this review, this review is not intended to be and does not purport to be an assessment of the condition, safety or risk of or associated with the business's assets and nothing in this report shall be taken to convey any such undertaking on our part to any party whatsoever.

All Earlier Advice Superseded

For the avoidance of doubt, we confirm that this report supersedes all previous advice from us on this matter, whether written or oral, and constitutes our sole statement on the matter.

Disclosure

Wilson Cook & Co Limited has prepared this report in accordance with the instructions of its client on the basis that all data and information that may affect its conclusions have been made available to it. No responsibility is accepted if full disclosure has not been made. No responsibility is accepted for any consequential error or defect in our conclusions resulting from any error, omission or inaccuracy in the data or information supplied directly or indirectly.

Disclaimer

This report has been prepared solely for our client, the Australian Energy Regulator (AER), for the stated purpose. Wilson Cook & Co Limited, its officers, agents, subcontractors and their staff owe no duty of care and accept no liability to any other party, make no representation or warranty as to the accuracy or completeness of the information or opinions set out in the report to any person other than to its client including any errors or omissions howsoever caused, and do not accept any liability to any party if the report is used for other than its stated purpose.

Non-Publication

With the exception of its publication by the AER, in relation to its review of the business's expenditure proposals, neither the whole nor any part of this report may be included in any published document, circular or statement or published in any way without our prior written approval of the form and context in which it may appear.

Appendix A: Curricula Vitae of Reviewers



CURRICULUM VITAE

Jeffrey Wilson **Engineering and Management Consultant, Adviser & Valuer**

Born	1947
Nationality	New Zealander
Education	ME, University of Auckland, 1970 BCom, University of Auckland, 1979 Courses and conferences locally and internationally on technical, managerial, leadership, governance and financial reporting matters, including IoD courses.
Languages	English : mother tongue Portuguese: reasonable reading ability, limited conversational ability French: reasonable reading ability, limited conversational ability
Professional Affiliations	FIET (UK), CEng (UK), FIPENZ, CPEng (NZ), MIEEE (USA) International Professional Engineer (IntPE) and APEC Engineer Member, New Zealand Association of Economists Member, Institute of Directors NZ
Countries of Work Experience	New Zealand, Australia. Europe: Portugal and Russia. SE Asia, the Pacific and Africa: Bangladesh, Bhutan, Cambodia, PR China, East Timor, Federated States of Micronesia, Fiji, India, Indonesia, Kyrgyz Republic, Laos, Malaysia, the Maldives, Mongolia, Nepal, Pakistan, Papua New Guinea, the Philippines, Samoa, Sri Lanka, Tanzania, Thailand and Vietnam.
Key Qualifications	Qualified in commerce and engineering. Corporate governance experience, including chairmanship, since 1988, in electricity utilities, state-owned entities (Industrial Research Ltd), private companies, trust-owned companies and other bodies (listed on next page). 38 years of professional experience in engineering and management consulting, advisory work and valuations including corporate development and management training in utility businesses, power system planning, economic and financial evaluation of projects, economic and financial modelling and evaluations, asset and business valuations and management of major multi-disciplinary projects. Adviser in New Zealand to electricity and gas utilities on valuation and regulatory matters. Adviser in Australia to regulatory bodies in New South Wales, the ACT, Victoria, Tasmania, Western Australia and federally (the Australian Energy Regulator) in relation to expenditure projections and fixed asset valuations for price determinations. (Wilson Cook & Co is currently working in NSW, the ACT and WA.) Adviser to the Independent Pricing and Regulatory Tribunal of NSW on various special assignments including prudential matters and economic and financial modelling of isolated combined heat and power schemes. Power sector project experience as Project Director, Team Leader, Power Engineer or Economist on power planning and corporate and sector restructuring projects in S.E. and South Asia, Portugal, Tanzania and Russia from 1984 to 2003. Experience in numerous due diligence investigations, project and business assessments,

risk assessments and valuations.

Expert witness in the High Court on various matters from c.1976 to the present time.

Consultant to the World Bank and Asian Development Bank on project formulation and sector policy development. Experience includes 2 years on the staff of the Asian Development Bank.

Employment Record

From-To (Month/Year)	Employer/Position	Description of Duties
May 2003 – Present	Wilson Cook & Co Limited – Founder and Managing Director	Engineering and management consultants, advisers and valuers.
Sep 1983 – May 2003	Worley Consultants, Beca Worley International then Meritec Limited – Department Manager	Manager in charge of power planning and management consulting services, economic and financial evaluations and asset valuations, 1984-2003.
	Meritec Group Ltd – Director and Chairman	Member of Board of Directors of Meritec Group over various periods from 1987 to 2002. Chairman from 1998 – 2001.
	Companies in Public and Private Sector	Non-executive director. Various appointments in the energy and industrial sectors since 1990.
Sep 1981 – Sep 1983	Asian Development Bank – Project Engineer	Technical and economic evaluation of projects. Loan administration.
May 1974 – Sep 1981	Mandeno, Chitty & Bell – Senior Engineer/Economist then Partner	Management and direction of a wide range of design and construction projects from power generation to boiler plant and building services. Project evaluations.
May 1971 – May 1974	New Zealand Electricity Department – Assistant Electrical Engineer	Substation design and construction supervision. Power system operational studies.

Company Directorships

Company directorships in public and state-owned companies in the energy and industrial sectors as follows:

Counties Power Ltd	July 2000 – Present
Industrial Research Ltd	July 1997 – June 2000
Materials Performance Technologies Ltd	c. July 1998 – June 2000 a/
Supalink Ltd	November 1997 – June 2000 a/
Mercury Energy Ltd	November 1993 – July 1994 b/
Geothermal Energy (NZ) Ltd	March 1990 – March 1991
Meritec Group Ltd	Chairman, March 1998 – February 2001 Director, December 1995 – August 2002, February 1994 – August 1994, and February 1988 – February 1991
Various private organisations, companies and trusts	President, director or trustee of various organisations and entities since around 1978.

a/ IRL representative.

b/ Resigned due to conflict with consulting practice.

Experience in the Gas Sector

Valuation of Gas Distribution Network

November 2008 – Present

Review for IPART of Prudential Requirements related to Isolated Electricity Supplies in NSW

November 2007 – June 2008

Regulation and Valuation of Electricity and Gas Network Fixed Assets - Powerco

September 2006 – Present

Regulation and Valuation of Electricity and Gas Network Fixed Assets –Vector

April 2006 – Present

Audit of New Zealand’s Infrastructure (Electricity and Gas)

September 2003 – December 2003

Valuation of Gas and Electricity Assets for Vector Ltd (for two years), United Networks Ltd, Orion Limited (for two years), Transpower Limited (for two years) and Unison Ltd

January 2002 – May 2003

Due Diligence of Gas and Other Network Assets (Confidential)

June 2002 – January 2003

Valuation of Gas Treatment Plants

2002

Review of Field Maintenance Services for Gas Networks

November 2001– January 2002

Sale and Purchase of Gas Network, New Zealand

December 1999 – April 2000

Asset Management Plan for Gas Distributor and Preparation of Gas Network Valuation Handbook

1994 – 2001

Confidential Valuation of High Pressure Gas Transmission Pipeline

c. 1998

Valuation of High Pressure Gas Transmission Network

1994

New Zealand and Australian Experience in the Regulatory Assessments etc

Technical Consultant to the Economic Regulation Authority of Western Australia for Review of Expenditure Forecasts of Western Power’s proposed Second Access Arrangement

October 2008 – Present

Principal Technical Consultant to the Australian Energy Regulator for Review of Expenditure Forecasts of the ACT and NSW Electricity Distributors

November 2007 – Present

Adviser to Vector Limited on Expenditure-Related Matters

June 2008 – December 2008

Due Diligence Review – Technical Adviser

November 2007– April 2008

Review of Public Lighting Expenditures – Integral Energy

August 2007 – February 2008

Review of Aurora’s Expenditures for Price Determination (Tasmania)

December 2006 – June 2007

Review of Audit Guidelines (NSW)

March 2007 – April 2007

Western Australia: Review of Western Power's Revised Expenditure Forecasts

March 2006 – September 2006

Consultant to IPART, NSW, for Cost Pass-Through Review

January – April 2006

Consultant to the Office of the Tasmanian Energy Regulator, for Mid-Term Review

August 2005 – February 2006

Consultant to the Economic Regulation Authority of Western Australia, for Review of Western Power's Asset Valuation and Expenditure Forecasts

August 2005 – January 2006

Principal Technical Consultant to Essential Services Commission, Victoria, for EDPR 2006

October 2004 – October 2005

Consultant to IPART, NSW, for Review of EnergyAustralia's Public Lighting Expenditures

June 2005 – August 2005

Review of Western Power's Estimates of Capex and Opex

February 2004 – May 2004

Review of DNSPs' Revised Estimates of Capex and Opex

January 2004 – May 2004

Submissions to Commerce Commission

February 2004 – April 2004

Appointment to Western Australian Electricity Sector Reform Panels

October 2003

Review of Electricity Distributors' Capital and Operating Expenditures for NSW Regulator

December 2002 – September 2003

Capital Expenditure Reviews for Regulatory Purposes

May 1998 – November 1998

Asset Management Plan and Long Term Network Development Plan Update for WEL Energy Group

August 1996 – January 1998

NSW State Government – Guidelines for Valuation of Network Fixed Assets

May 1995 – January 1996

New Zealand and Australian Energy Sector

1991 – 2000

Consultant to over 30 power utilities and energy companies in Australasia

New Zealand Power Sector

October 1983 – December 1991

Consultant

International Experience in the Electricity Sector

Details of Mr Wilson's experience internationally are available on request.

Other Experience

Details of Mr Wilson's other experience are available on request.

Publications and Papers

4. "Use of high-temperature water for the transport and distribution of heat", Trans. NZIE, 1981 (with B G Smith).
10. "Economic decision-making", Technical Forum, Auckland, April 1987 (with I.L. Wilson).
13. "Small isolated power systems - the issues", proceedings of Minerals and Energy Forum, Pacific Economic Co-operation Conference Specialist Group Meeting, August 1990.
14. "Capital investment appraisal in New Zealand's power sector in the 1990's", ESEA Generation Forum, Rotorua, March 1992.
15. "Valuation and regulation of New Zealand electricity companies: progress and issues", 10th CEPSI Conference, Christchurch, 1994.
16. "Developing transparent, efficient and effective procurement processes for power infrastructure in APEC member economies - a comparative study report", APEC Energy Working Group Report and Workshop, May 1997 (with W Jamieson of Norton Rose) (**ACENZ silver award-winning project**).
18. "Asset management strategies for power distribution utilities", Conference on Best Practice Asset Management for Utilities, Wellington, October 1997 (with R T Clifton and D S Todd).
21. "Long term network planning - best practice features", EEA Annual Conference, Auckland, June 1998 (with P C White and R T Clifton).
23. "Asset management plans and security of supply in the New Zealand electricity distribution industry", EEA Forum, Wellington, September 1998.
24. "Aspects of risk analysis and electricity network planning", Conference on Risk Management for Utilities, Auckland, December 1998 (with R T Clifton and G C Horvath).
25. "Outsourcing of engineering design and network maintenance services", AESIEAP CEO's Conference, Cebu, November 1999 (with R Clifton, M Tucker and L Lorentz).
26. "Review of international best practice in power system planning in the New Zealand context (with particular reference to the choice of voltage levels for sub-transmission and distribution and security of supply planning criteria)", EEA Conference, Auckland, June 2000 (with M.J. Whaley and H Tong).
27. "New Zealand electricity sector reform – a review of current issues", CEPSI 2000, Manila, October 2000 (with M.J. Whaley).
30. "New Zealand's experience of 'de-regulated' electricity supply", CIRED 18th International Conference on Electricity Distribution, Turin, 6-9 June 2005.
31. "New Zealand's power sector regulatory environment – an update", CIRED 19th International Conference on Electricity Distribution, Vienna, 21-24 May 2007.
32. "How useful is your asset management plan?", NZ 2nd Annual Electricity Network Asset Management Summit, Wellington, 20-21 November 2007.

CURRICULUM VITAE

Peter Cole **Fuels and Energy Specialist (Gas Distribution)**

Born	1942
Nationality	New Zealand
Education	BE (Mechanical Engineering, 1st Class Honours), University of Auckland, 1972 MPhil, Massey University, 2007
Languages	English : mother tongue French: reading ability
Professional Affiliations	MIPENZ Chartered Professional Engineer (New Zealand)
Countries of Work Experience	New Zealand, Australia, Bangladesh, Indonesia, Malaysia, Niue, the Philippines, Samoa, Singapore, Thailand, Vietnam and the Yemen.
Key Qualifications	Qualified in mechanical engineering with 37 years of professional experience in engineering consulting, advisory work and asset valuations. Adviser to governments, institutional and private clients on fuel- and energy-related policies, plans and designs. Adviser on energy supply options, fuel selection and utilisation. Specialist in gas reticulation and use. Experienced in natural gas and LPG market studies, planning, distribution and utilisation matters. Experienced in CNG/NGV planning, technology and implementation. Experienced in the design of mechanical and energy-related services for hospitals, institutional and commercial buildings. Experienced in the co-generation of heat and power. Experienced in the assessment of projects, including risk assessment. Experienced in the management of energy sector projects in New Zealand and overseas. Expert witness on energy- and gas-related matters. Corporate governance experience. Familiar with international lending agency and regulatory requirements.

Employment Record

From-To (Month/Year)	Employer/Position	Description of Duties
Sept. 2001 - present	Empower Consultants Ltd – Energy Specialist/ Director	Specialist consultant for gas and energy sector projects in New Zealand and overseas. Consultant to Wilson Cook & Co Limited.
April 1979 - September 2001	Meritec Ltd – Director	Management of gas sector projects in New Zealand and overseas including distribution and utilisation (industrial conversion and CNG). Gas sector planning in New Zealand and overseas. Preparation of reports and studies on natural gas, NGV/CNG and LPG markets, distribution and utilisation. Planning and design of energy distribution and utilisation systems. Expert witness on energy and related matters.
February 1972 - April 1979	Meritec Ltd – Engineer/Senior Engineer	Design of mechanical and energy services for hospital, institutional and commercial buildings.
April 1968 - February 1972	Meritec International Ltd - Senior Draughtsman	Design draughting work - mechanical services.
February 1967 - April 1968	A & T Burt Ltd - Estimator & Contract Supervisor	Estimating for and supervision of building services contracts.
June 1965 - February 1967	Ward Construction Ltd - Draughtsman	General mechanical and structural draughting.
August 1964 - April 1965	United Baltic Corporation Ltd – Marine Engineer	Watch-keeping and general engine maintenance.
November 1959 -	New Zealand Shipping Co. Ltd - Marine Engineering Apprentice	

New Zealand and Australian Experience

Gas Network Valuation for Vector Limited

November 2008 – Present

IPART Review of Prudential Requirements related to Isolated Electricity Supplies in NSW

November 2007 – June 2008

Gas Network Fixed Asset Valuation for Powerco Limited

October 2006 - continuing

Gas Network Fixed Asset Valuation for Vector Limited

May 2006 – continuing

Use of Landfill Gas as a Boiler Fuel at Nelson Hospital
2003- 2007

Gas Supply Options Study for Powerco Limited
September 2005 to June 2006

Gas Valuation Advice for NZ Commerce Commission
2003 - 2004

Mid-Central Health Limited Gas Supply Contracts
1998- 2004

Gas Network Fixed Asset Valuation for Vector Limited
January - August 2003

Gas Network Due Diligence for Vector Limited
July- August 2002

Gas network Valuation Handbook for Ministry of Economic Development
2001

Gas Network Due Diligence for Siemens Limited
January - March 2001

Gas Supply Contract for Water Care Services Limited
2000

Cogeneration Studies for Various Clients
1990 to 2000

Gas Network Due Diligence for Vector Limited
December 1999 - April 2000

LPG Consultancy Services for Rockgas Limited
1978 to 1999

Audit of LPG Installation
1999

Comparative Fuel Study for Natural Gas Corporation
Completed 1998

Gas Network Due Diligence for United Networks Limited
1998

Expert Witness for Crown Law Office on Gas Pipelines
November 1996- July 1997

Adviser to Department of Inland Revenue
May 1995 - May 1996

Gas Pipeline Feasibility Study (Confidential)
1996

Consulting Services to Capital Coast Health Ltd (Wellington) – Gas
1996

Landfill Gas Utilisation Study for Waitakere City Council
1993

Rockgas Limited
1986 – 1990

International Experience

Natural Gas Codes in Bangladesh

2005- 2006

Reduction of Vehicle Emissions in Jakarta

2003- 2005

Gas Sector Policy and Regulatory Framework for the Philippines

1998- 2002

Landfill Gas Utilisation in the Philippines

1999- 2001

Natural Gas Utilisation Project

1996 – 2000

Natural Gas as a New Energy Resource for the Philippines

July 1997 – December 1999

New Zealand Ministry of Foreign Affairs & Trade – Natural Gas Utilisation in Transport

1993 to 1999

LPG Substitution in Yemen

1994 – 1998

Feasibility Study of Options for Transport of Natural Gas

Completed 1986

Technical Audit of CNG Pilot Project

Completed 1986

Selected Papers

1. *“The New Zealand NGV programme and the lessons learnt”*, Technical Symposium and Investment Round Table on Transport Related Contracts for Natural Gas, ESCAP/Petronas, Kuala Lumpur, 1996.
2. *“Natural gas as an energy source for industrial and commercial buildings in ASEAN”*, ASEAN Energy Conference, Bangkok 1995.
3. *“The economics of compressed natural gas as a vehicle fuel- the New Zealand perspective”*, Petroleum Institute of Thailand conference: Gas Utilization Policies: an International Perspective, Pattaya, 1987.
4. *“Transport fuels in New Zealand – a new direction”*, World Energy Conference Regional Symposium, Perth, 1986 (with RK Green, JK Raine, NB Smith and P Waring).

CURRICULUM VITAE

Derek Walker Utility Management Adviser

Born	1954
Nationality	New Zealander
Education	BE (Hons) (Electrical), University of Canterbury, 1975 BBS, Massey University, 1991 Various engineering and management training programmes, including Institute of Directors company director courses.
Languages	English : mother tongue
Professional Affiliations	Member, Institution of Professional Engineers, New Zealand Member Institute of Directors in NZ
Countries of Work Experience	Australia, New Zealand.
Key Qualifications	<p>Qualified professionally in engineering and management.</p> <p>25 years' experience in management and senior engineering roles in the distribution sector of the electricity supply industry, leading to a thorough understanding of, and practical experience in, all aspects of the industry including generation, wholesale market, retail, distribution and utilisation.</p> <p>Development and utilisation of costing and pricing models for network and energy retail businesses.</p> <p>Knowledge and experience in planning, designing, maintaining and operating urban and rural electricity distribution networks.</p> <p>Considerable experience in negotiating and implementing major business transactions including mergers, acquisitions and sales.</p> <p>High-level understanding and practical application of all business management disciplines including strategic and business planning, performance management, finance, accounting, treasury, legal, risk management, engineering, marketing and human resources.</p> <p>Thorough knowledge and practical experience of governance responsibilities for both commercial and not-for-profit organisations.</p> <p>Ability to see the "big picture" and think laterally and strategically.</p> <p>Ability to develop and maintain a high performance management and organisation team culture in a changing environment.</p> <p>Empathy with staff and customers giving an ability to build strong loyalty.</p> <p>Excellent written and verbal communication skills and a high level of computer literacy.</p> <p>Familiar with the Australian and New Zealand electricity supply industry.</p> <p>Consultancy experience in multi-disciplinary teams since 2000.</p>

Employment Record

From-To (Month/Year)	Employer/Position	Description of Duties
2001 – Present	Director and Principal, Third Bearing Ltd.	Business and management consulting and consultant to Wilson Cook & Co.
1989 – 2000	Chief Executive, CentralPower Limited (previously the Manawatu-Orua Electric-Power Board). Appointed Managing Director in November 1993.	Responsible for all aspects of the business's development and operation.
1981 – 1989	Ashburton Electric-Power Board. Substation and Distribution Engineer from 1981; Chief Engineer from 1986; and Commercial Manager from 1988.	Responsible, in final position, to the Chief Executive for all engineering, marketing and sales activities.
1979 – 1981	Electricity Division, Hamilton City Council. Design Engineer.	Responsible for electricity distribution network planning and design functions.
1975 – 1978	South Canterbury Electric-Power Board. Assistant Engineer.	Engineering planning, design, construction supervision and operational duties.

Company Directorships

Directorships or trusteeships in private and public companies and trusts in the energy sector and in other organisations as follows:

Spiers Group Limited	2007 – Present
Quotable Value Limited	2005 – Present
NZ Windfarms Limited	Director, 2004 – 2005. Chairman, 2005 – Present
Central Energy Trust	2003 – Present
The Bio Commerce Centre Limited	Chairman, 2003 – Present
Third Bearing Limited and associated companies	2001 – Present
Palmerston North City Holdings	2000 – 2005
Palmerston North Airport Limited	Director, 2000 – 2002. Chairman, 2002 – Present
Manawatu Life Education Trust	Chairman, 1995 – 1997. Trustee, 1997 – Present.
Palmerston North Theatre Trust	Trustee, 1994 – 1998. Chairman, 1998 – 2006
Energy Brokers New Zealand Limited	Director, 1994 – 1996. Chairman, 1996 – 2000
Electricity Networks Association	1994 – 2000
CentralPower Limited and subsidiaries	1994 – 2000

Relevant Experience

Consultant to the Economic Regulation Authority of Western Australia for Review of Expenditure Forecasts of Western Power's proposed Second Access Arrangement

October 2008 – Present

Consultant to the Australian Energy Regulator for Review of Expenditure Forecasts of the ACT and NSW Electricity Distributors

November 2007 – Present

Review of Prudential Requirements related to Isolated Electricity Supplies in NSW

November 2007 – June 2008

Brief Review of Projected Expenditures Arising from National Electricity Market (NEM) Responsibilities (Tasmania)

June 2007 – July 2007

Review of Aurora's Expenditures for Price Determination (Tasmania)

December 2006 – June 2007

Western Australia: Review of Western Power's Revised Expenditure Forecasts

March 2006 – September 2006

Review of Cost Pass-Through Expenditures of NSW DNSPs for IPART

January – April 2006

Consultant to the Office of the Tasmanian Energy Regulator, for Mid-Term Review

August 2005 – February 2006

Consultant to the Economic Regulation Authority of Western Australia, for Review of Western Power's Asset Valuation and Expenditure Forecasts

August 2005 – January 2006

Principal Technical Consultant to Essential Services Commission, Victoria, for EDPR 2006

October 2004 – October 2005

Business and Management Consulting

Director and Principal, Third Bearing Limited

Grid Security Committee (New Zealand)

Committee Member

1999 – 2000

Electricity Distribution Business Experience

Various positions, including Chief Executive then Managing Director of CentralPower Ltd
1975 – 2000



CURRICULUM VITAE

Patrick Hyland **Asset Management Specialist**

Born 1957

Nationality New Zealand and Canadian

Education BE (Hons) (Electrical), University of Canterbury, 1979
ME (Electrical), University of Canterbury, 1980

Training Courses:

“Construction contracts”, a course on contract law with an emphasis on NZS 3910.

“Project evaluation”, a course on the financial evaluation and risk assessment of projects by Arthur Young Associates.

“Management skills”, a two-week course with emphasis on management by objectives.

“ISRS orientation and management training”, a three-day course on the International Safety Rating System.

“Industrial relations”, a two-day course by consultant Mr P Meuli.

“Process Control”, a four-day course by Engineering Information Transfer.

“Interaction management”, a five-day trainer’s course in teaching the Interaction Management programme by Mentor Human Resource Group Ltd.

“Authorisation holder’s certificate (power plant)”, a course for authorisation to work on operational power plant.

First aid and CPR certification and subsequent revalidations.

“Power system dynamic simulation”, a six-day course by Dr J Undrill.

Languages English : mother tongue

Professional Affiliations Member, Electricity Engineers Association (New Zealand).

Countries of Work Experience New Zealand, Australia.

Key Qualifications Qualified in electrical engineering.
27 years of professional experience in power engineering and in project management.
Experience initially in generating plant and transmission networks, then in distribution networks.
Experience in due diligence investigations, numerous project and business assessments, risk assessments and reviews.
Experience in the preparation and review of asset management plans.
Has specialised in the assessment of network service delivery and the prediction of asset lives.
Has also specialised in analytical work and the assessment of risk.
Adviser to several of New Zealand’s largest generation and network businesses.
Adviser to network businesses in Australia.

Author of several published papers in these fields (listed at the end of this CV).

Winner of industry award for a project in automation and control (the Association of Consulting Engineers of New Zealand's Silver Award of Merit, 1992).

Employment Record

From-To (Month/Year)	Employer/Position	Description of Duties
December 2005 to Present	Hyland McQueen Ltd – Principal.	Consultancy services to the power industry. Consultant to Wilson Cook & Co Limited.
May 1995 to December 2005	Austral Engineering Associates Ltd – Principal.	Consultancy services to the power industry.
June 1992 to December 1994	Worley Consultants Ltd – Senior Engineer.	Responsible for project management and detailed design of projects for the power industry.
September 1987 to June 1992	Electricity Corporation of New Zealand – Group Electrical Engineer, South Island Hydro.	Responsible for various major projects and electrical standards at power stations in the South Island.
May 1986 to August 1987	New Zealand Electricity Department – Project Manager.	Responsible for the detailed design, procurement and construction of the \$10 million refurbishment of the Roxburgh 220 kV switchyard.
March 1981 to April 1986	New Zealand Electricity Department – Assistant Engineer.	Steam-field electrical design for Ohaaki geothermal power project; substation design standards, HVDC and filter bank controls and maintenance engineering.

Experience in the Electricity Sector

Consultant to the Economic Regulation Authority of Western Australia for Review of Expenditure Forecasts of Western Power's proposed Second Access Arrangement

October 2008 – Present

Consultant to the Australian Energy Regulator for Review of Expenditure Forecasts of the ACT and NSW Electricity Distributors

November 2007 – Present

Due Diligence Assessment of the Orion Gas Network

February 2000 to March 2000

Advice to Vector Limited on Expenditure-Related Matters

June 2008 – December 2008

Review of Asset Management Planning Documents

November 2007 to Present

Maintenance Optimisation Review

August 2007 to November 2007

Translating Generator Condition to Risk

May 2007 to August 2007

Insurance Risk Model Assumptions Measurement

June 2007 to July 2007

Tariff Meter Management Review

January 2007 to March 2007

Review of Asset Management Planning Documents

November 2006 to January 2007

Creation of Life-Cycle Models for Generation Plant

February 2006 to August 2006

Generation Embedding Risk

May 2006 to July 2006

Network Maintenance Contract Pricing for Lines Company

January 2006 to March 2006

Creation of Asset Management / Risk Management Software System

August 2005 to September 2006

Life Cycle and Risk Modelling Integration Project

December 2004 to October 2006

Impact Assessment of Energy-Efficient Lights on Networks

August 2004 to September 2005

Independent Review of Electricity Metering Plan – United Energy Distribution Ltd, Australia

February 2005

Engineering Overview for New Generation Proposal

December 2004 to March 2005

Hydro Generator Life Prediction

August 2004 to November 2004

Asset Management Assessment for Marsden B Power Station

January 2004 to April 2004

Cost and Risk Assessment for Due Diligence

February 2004

Asset Management Strategy Development

January 2004 to March 2004

Plant Risk Model Redevelopment

October 2003 to May 2004

Maintenance Contract Costing Model

September 2003 to December 2003

Line Charge Assessment

July 2003

Development and Drafting of Asset Management Plan

March 2003 to May 2003

Maintenance Processes Audit

August 2002 to September 2002

Network Reliability Modelling for Setting Network Maintenance Service and Capital Development Requirements

November 2002 to December 2002

Drafting 2003/04 Asset Management Plan

August 2003 to September 2002

Due Diligence Assessment of the Asset Planning of CitiPower Limited, Melbourne

June 2002 to July 2002

Develop Business Case for Rollout of Maximo CMMS

August 2001 to January 2002

Development of an Assets Inspection Data Collection Process

May 2001 to September 2001

Distribution Transformer Maximum Demand Approximation

February 2001 to May 2001

Capital Projects Database

November 2000 to March 2001

Development of “PlantRisk” Model for Asset Replacement Forecasting

June 2000 to February 2001

Drafting Asset Management Plan Describing Asset Replacement Requirements

August 2000 to December 2000

Sale of Contracting Division – Preparation of Maintenance Schedules

May 2000 to August 2000

Drafting an Asset Management Plan for Network Waitaki Ltd

August 1999 to November 1999

Maintenance and Replacement Documentation for United Energy Ltd – Melbourne

September 1999 to November 1999

Risk Statement for United Networks Ltd

July 1999 to October 1999

Reliability Forecasting Model for United Energy Ltd – Melbourne

June 1999 to October 1999

Weather Normalisation of Network Reliability Data for United Energy Ltd – Melbourne

April 1999 to May 1999

Asset Management Philosophy and Revision of the Asset Management Plan

February 1999 to April 1999

Compliance Testing Strategy for Domestic Metering for United Energy Limited – Melbourne

August 1998 to April 1999

Due Diligence Assessment of Electricity Network for United Networks Limited

September 1998 to December 1998

Overhead Line Reliability-Centred Maintenance Review for United Energy Limited – Melbourne

February 1998 to September 1998

Network Information System Review for Power New Zealand Limited

July 1997 to December 1997

Distribution Transformer Maintenance Strategy and Cost Model for Power New Zealand Limited

April 1997 to July 1997

Substation Database Design for Power New Zealand Limited

January/February 1997

Subdivision Design Review for Power New Zealand Ltd

July 1996 to December 1996

Maintenance Review for Power New Zealand Ltd

May 1995 to July 1996

Power Station Manuals Preparation

May 1994 to November 1994

Revenue Metering Project

July 1992 to March 1994

Revenue Metering Project

September 1991 to July 1992

Publications and Papers

1. Densem & Hyland, "Out of condition or condition drives assets", paper presented to EEA Conference, July 1996.
2. Densem, Hyland, Cochrane Whatley & Zonneveld, "Identify the maintenance risks or pay the cost", paper presented to Distribution 2000 Conference, Sydney, November 1997.
3. Hyland & Moffat, "Road-testing meter compliance", paper presented to EEA Conference, June 1999.
4. Hyland & McQueen, "What's that creeping up on you", paper presented to EEA Conference on distribution transformer management, June 2002.
5. McQueen M, Hyland & McQueen D, "An alternative to distribution transformer maximum demand recording", paper presented to Distribution 2003 Conference, Adelaide, November 2003.
6. McQueen, Hyland & Watson, "Monte Carlo simulation of residential electricity demand for forecasting maximum demand on distribution networks", IEEE Trans. PES, January 2004.
7. McQueen, Hyland & Watson, "Application of a Monte Carlo simulation method for predicting voltage regulation in low voltage networks", IEEE Power Engineering Society, July 2004.
8. Hyland, "Living with uncertainty: managing capital and maintenance expenditure for network reliability", 1st Annual Electricity Networks Asset Management Conference, Wellington, November 2006.
9. Hyland, "Asset replacement planning – one size does not fit all", 2nd Annual Electricity Networks Asset Management Conference, Wellington, November 2007.

CURRICULUM VITAE

Bernard Ivory Financial Analyst / Economist

Born	1932
Nationality	New Zealander
Education and Training	<p>Bachelor of Commerce (Accountancy & Economics) University of New Zealand 1955 Professional examinations of The Institute of Chartered Accountants of NZ (1953) and of The Chartered Institute of Corporate Management (NZ) (1954)</p> <p>Other training: industrial engineering, cost and management accounting and budgetary control, marketing, supervisory and management training and development in-house with employer. Professional examinations of the NZ Institute of Valuers 1974-1980 (sat and passed 13 of 14 units)</p>
Languages	English: mother tongue
Professional Affiliations	<p>Institute of Chartered Accountants NZ (Hon ACA retired) 1953-2005 The Chartered Institute of Corporate Management (NZ) (CCM) 1954-2001 Institute of Chartered Management Consultants NZ (CMC) 1974-1999 Institute of Directors NZ (Fellow) 1972-2001</p>
Countries of Work Experience	Australia, Bangladesh, Bahrain, Bhutan, Cambodia, East Timor, Fiji, Indonesia, India, Kiribati, Laos, Maldives, Malaysia, Mongolia, Nauru, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Solomon Islands, Thailand, Tonga, Tuvalu, USA, Vanuatu, Vietnam.
Key Qualifications	<p>More than 30 years of professional experience in financial and economic analysis and management consulting with an emphasis in the last 20 years on the electricity supply industry.</p> <p>Experienced in the preparation and assessment of financial models of companies and projects.</p>

Employment Record

From-To (Month/Year)	Employer/Position	Description of Duties
May 2003 – Present	Consultant to Wilson Cook & Co Limited.	Financial analyst and management consultant.
1962 - 1972 then 1974 - 2005	PA Consulting Group, Australia and New Zealand.	Specialised in the fields of financial and economic analysis, management information and systems, institutional development and strategic business and country planning.
1972 - 1974	Lockwood Buildings Ltd.	Rotorua, NZ, General Manager.
1952 - 1962	Skellerup Industries Ltd.	Christchurch, NZ, Company Secretary and Accountant.

Experience in the New Zealand and Australian Electricity Sectors

Consultant to the Economic Regulation Authority of Western Australia for Review of Expenditure Forecasts of Western Power's proposed Second Access Arrangement

October 2008 – Present

Consultant to the Australian Energy Regulator for Review of Expenditure Forecasts of the ACT and NSW Electricity Distributors

November 2007 – Present

Review of Prudential Requirements related to Isolated Electricity Supplies in NSW

November 2007 – Present

Electricity Distributors' Cost Pass-Through Application – Review for IPART

January 2006 – April 2006

Economic Regulation Authority of Western Australia – Review of Western Power's Asset Valuation and Expenditure Forecasts

August 2005 – January 2006

Office of the Tasmanian Energy Regulator – Mid-Term Review

August 2005 – February 2006

Review of DNSPs' Revised Estimates of Capex and Opex for NSW Regulator (IPART)

September 2003 – October 2003

Review of Electricity Distributors' Capital and Operating Expenditures for NSW Regulator (IPART)

December 2002 – September 2003

Review of Customer Capital Contributions for Electricity Connections (for IPART)

March 2001 – October 2001

Waikato Energy Group: Pricing Network Services, Hamilton, NZ

1994

Transpower Ltd – Review of Proposed Pricing Policies

1991

International Experience in the Electricity Sector

Establishment of New Management Contract for ECTL

November 2006 – March 2007

Corporatisation of the Bangladesh Power Development Board, Dhaka, Bangladesh

2006 – 2007

Update of the Electricity Tariff Rationalisation Study for PT PLN (Persero)

2004

Preparation of the Assam Power Sector Development Programme, Guwahati, India

2003

Implementation Framework for IPP Projects Outside Java-Bali

2002-2003

Governance and Institutional Support for Private Sector Development, Sri Lanka

2002

Third Power Project Rehabilitation Loan, Sri Lanka

2001

Power Sector Restructuring, Sri Lanka

2000-2001

Evaluation of Hydropower Proposals, Solomon Islands Electricity Authority

1999

Privatisation Study of Electricity and Water Assets, Bahrain

1998

World Bank/Privatisation Commission of Pakistan

1997

Corporate and Financial Development of Electricité du Laos

1996-1997

Institutional Strengthening of Fiji Electricity Authority

1996-1998

Review of Technical and Financial Performance of Assam State Electricity Board, India

1992

Financial and Organisational Restructuring of Karachi Electric Supply Corporation

1992

Establishment of Lanka Electricity Co (Private) Ltd, Sri Lanka

1985-1987