Australian Energy Regulator

Review of Expenditure of ACT & NSW Gas Distributors – Additional Report

Jemena Gas Networks (NSW) Ltd

June 2010

Wilson Cook & Co
Engineering and Management Consultants
Advisers and Valuers

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Reply to: Auckland Office
Our ref: 1006
Email: info@wilsoncook.co.nz

8 June, 2010

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

Dear Mr Buckley,

RE: REVIEW OF EXPENDITURE OF ACT & NSW GAS DNSPs: JEMENA GAS NETWORKS (NSW) LTD – ADDITIONAL REPORT

In response to your instructions, we have reviewed the revised gas access arrangement proposal submitted by Jemena Gas Networks (NSW) Ltd to the AER in March 2010 in relation to capital and operating expenditure in the next access arrangement period, FY 2011 to FY 2015, and submit our report.

Conclusions

The main conclusions to come out of this review are as follows.

(a) We recommended in our Final Report that the base-year level of operating expenditure be set at a reduced level and that adjustments be made to reduce the requested level of technical step changes. Jemena has submitted a revised operating expenditure proposal based on its audited actual expenditure in the base year, FY 2009, together with various supporting documents that we have reviewed. However, we are still unable to attest to the efficiency of the base-year expenditure as insufficient information has been supplied in relation to it. We therefore retain the opinion expressed in our Final Report, recommending a newly calculated reduction in the base-year level.

(b) We concluded in our Final Report in relation to Jemena's forecast capital expenditure in the next period that its prospective efficiency was not adequately demonstrated by Jemena and thus we were able to recommend only that the forecast level of expenditure be accepted as reasonable in terms of scope, subject to various adjustments that we proposed. New information provided by Jemena has enabled us to accept the level of the proposed expenditure as efficient with certain adjustments, albeit with the benefit of some doubt as the new information supplied was at best the bare minimum required. Our opinion is qualified by continued doubts in respect of the appropriateness of the **[c-i-c]**% margin added to the cost estimates and in respect of the capitalised overheads, in respect of both of which we set out various points of principle in our Final Report and which we were not required to examine further in this review.

None of the following matters have been re-examined in this review: Jemena's actual and forecast capital expenditure in the present period; Jemena's proposed step changes in relation to

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operating expenditure in the next period; the roll-forward of base-year operating expenditure; and the proposed volume of unaccounted-for gas. Our findings in relation to these matters therefore remain as stated in our Final Report.

Observations

You will recall that a common theme in the majority of the expenditure categories reviewed last year and discussed in our Final Report was the lack of information available on which to verify the scope, necessity, timing and optimality of the expenditure incurred or forecast. This was combined with related party transactions that made it impossible, in the absence a reconciliation of the costs incurred by Jemena and the various related parties, to identify or confirm as reasonable the direct and indirect cost allocations or "margins" that have been incorporated in the expenditure. At best, we were able to conclude (sometimes by giving Jemena the benefit of reasonable doubt) that the work undertaken was reasonable in scope or appeared so. However, in no case were we able to attest to the cost efficiency of the expenditure because of the lack of information on the details, volumes and costs of completed work. Wherever possible, we indicated the type of additional information that we believe would be required to address those issues.

In this reassessment, therefore, we were particularly interested in receiving the information that we identified in our Final Report as needed for a full assessment of the proposed expenditure to be made. However, we believe it is fair to say that little new material information was provided by Jemena in relation to operating expenditure, at least as far as our assessment of the scope, necessity, timing and optimality of the expenditure was concerned. The new information provided by Jemena in relation to capital expenditure included business cases, their accompanying preliminary cost estimates and other responses to particular matters raised in our Final Report. However, in at least one case — the proposed replacement of aged residential meters earlier than generally replaced to date — Jemena's position was not supported by any evidential material in relation to the condition of the meters or the likelihood of their replacement being needed. Information provided this year by Jemena in relation to the level of contracting out of capital expenditure work to unrelated parties by competitive tender differed from information provided in December 2009 on the same matter, raising an element of doubt, but an explanation of the changes in the data was received from Jemena. In respect of both operating and capital expenditure, we retained doubts in relation to the appropriateness of the **[c-i-c]**% margin added to the cost estimates and in respect of the capitalised overheads, as set out in our Final Report.

As an observation for the future, we would have thought that the fuller and earlier provision of detailed information by Jemena on its expenditure proposals would have greatly aided this review.

Yours faithfully,

Wilson Cook & Co Limited

Encl.

Review of Expenditure of ACT & NSW Gas Distributors – Additional Report

Jemena Gas Networks (NSW) Ltd

Prepared for the Australian Energy Regulator

By Wilson Cook & Co Limited

Enquiries to Mr J W Wilson

Our reference 1006

June 2010

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Table of Contents

1 Introduction

1.1 Background

Jemena Gas Networks (NSW) Ltd ("JGN") submitted its original access arrangement revision proposal for its New South Wales networks for the next access arrangement period to the AER in August 2009. The AER issued its draft decision on JGN's proposal on 10 February 2010 and, in March 2010, JGN submitted a revised proposal to the AER. The AER asked us to examine various technical (engineering) matters in relation to JGN's revised proposal as set out below and this report presents our findings. It is presented in five main sections as follows:

- Section 1 – Introduction (this section)
- Section 2 –Approach and General Matters
- Section 3 – Operating Expenditure in Next Period
- Section 4 – Capital Expenditure in Next Period
- Section 5 – Conclusion.

1.2 Scope of the Review

The requested scope of our review was to:

(a) review and provide technical advice on JGN's submission of March 2010 comprising a revised regulatory proposal and supporting documents;
(b) provide technical advice on specific issues raised in or by JGN's submission;
(c) consider any new information provided by JGN and advise of any revisions needed in the recommendations made in our Final Report to the AER of 3 February 2010 (referred to in this report as our "Final Report");
(d) provide details of any proposed revisions to JGN's levels of operating and capital expenditure in the next period as a result of any changes in the recommendations;
(e) identify any new information that has led to the revision of our previous recommendations (or, if no revisions are proposed, why JGN's submissions and new information do not lead to revised recommendations); and
(f) have regard to stakeholder submissions raised in relation to the issues to be reviewed.

The matters referred to in (b) above related to the following:

1. modifications made by JGN to the level of its operating expenditure in the base year and in each year in the next period, whether for the correction of errors reported in December 2009 or for other reasons;
2. the increase in market expansion capital expenditure, the decrease in system reinforcement, renewal and replacement capital expenditure and the decrease in capital expenditure on non-system assets in the next period;
3. arguments raised by JGN against the adjustments recommended in the Final Report in relation to its capital expenditure in the next period including but not limited to the provision of additional information in relation to meter replacements and motor vehicle fleet replacements;
4. the adequacy of coverage of the business cases received and the inferences to be drawn from them in relation to the efficiency of the forecast expenditure;

5. the optimality of the proposed expenditure in terms of its timing;
6. the deliverability of the proposed expenditure;
7. whether any further technical matters arise in relation to the reclassification of certain capital expenditure items as operating expenditure (in respect of which it was considered, in the Final Report, that the expenditure did not appear to be capital in nature).
8. whether any principles stated in the Final Report, e.g. in relation to the capitalisation of overheads, need re-stating for the avoidance of doubt; and
9. whether any arguments raised by JGN or its advisers in relation to methodological matters call for modification of the method of assessment.

We were not required to re-examine JGN's actual or projected expenditure for the present period, its proposed operating expenditure step changes in the next period, the rolling forward of its base year operating expenditure in the next period or its related party contractual arrangements and their associated margins. Nor were we required to reconsider any further matters in relation to unaccounted-for gas.

As in the case of our original review, we were not required to examine any matters to do with JGN's demand forecast or its proposed expenditure on marketing, governmental levies, carbon costs, self-insurance or the raising of debt.

Other Matters

Our terms of reference did not specifically require us to consult with JGN or to seek any additional information needed and there was not sufficient time available to enter into a dialogue, in addition to which we considered it reasonable to rely on JGN's submissions as presented to the AER. However, clarifications were sought from JGN through the AER as considered necessary.

We were to present our draft report to the AER by 26 April 2010 and we consulted the AER before the work began to clarify what it was practical to achieve in the limited time available for the review. The scope of this report reflects the conclusions so reached.

1.3 Abbreviations

The abbreviations used in this report are those used in the Final Report except that, at JGN's request, references to "Jemena" have been replaced with references to JGN or to JAM (Jemena Asset Management) as appropriate. However, in making this change, we note again that JAM and JGN are related parties.

1.4 Matters Not Reviewed

The review was limited to the context of our instructions – namely, to report on matters affecting or potentially affecting the adjustments to JGN's expenditure that we recommended in our Final Report.

1.5 Interpretation of This Report and Our Final Report

This Report to be Read in Conjunction with Final Report

This report should be read in conjunction with our Final Report.

Opinions Expressed in Final Report

For the avoidance of doubt, we confirm that the opinions expressed in our Final Report remain unchanged unless specifically modified in this report.

Limitation

Statements made in our Final Report and in this report are limited to the particular matters stated. No implied extension of our text, implied conclusion or opinion, or quotation taken in isolation from our text as a whole, should be attributed to us or be given any weight by the AER or any other authority considering the findings of our reports. [1]

No Interpretation of Law or Rules Intended

For the further avoidance of doubt, we emphasise that no statement made in our reports should be taken as an interpretation of the applicable Law or the Rules, as none is intended. [2]

1.6 Interpretation of JGN's "Initial Response" Document

Caution appears to be needed when reading JGN's *Initial Response*, as some statements in it in relation to our work are open to differing interpretations and some appear to be incorrect. For example:

The inferences or implied quotations drawn from our work and presented on pp. 45-47 of JGN's *Initial Response* are not all accurate or complete, are in some instances a combination of statements made in different places in our report without this being made clear to the reader and, in at least two instances, are not correctly referenced (footnotes 47 and 50). It is possible that some or all will be misleading as a result.

The last paragraph on p. 82 of JGN's *Initial Response* gives the impression that we did not consider the future implications of any new safety or statutory requirements whereas that is not the case. The full quotation of the passage at the bottom of p. 3 of our Final Report, "consideration of the possible effects … except to the extent that they have been identified by the business" would have made that clear. The matter recurs on p. 89 of the *Initial Response* and possibly elsewhere.

It should be clear from our text on p. 43 of the Final Report that we were not criticising JGN's financial statements or the principles on which they were prepared and audited but were making recommendations on what should be included in the regulatory asset base. That is a different matter entirely. The following inferences drawn from our statements and written in the *Initial Response* at p. 87 are thus completely unwarranted:

> "Inherent in Wilson Cook's conclusion and the AER's draft decision as regards historic capex is a conclusion that JGN's audited statutory accounts have been incorrectly prepared and that neither JGN nor its auditors should have signed them off. JGN takes this issue very seriously and considers that this conclusion is without basis, particularly given this was a matter outside of Wilson Cook's scope of work."

Our text on p. 43 of the Final Report in connection with mines subsidence is relevant to this point. It read:

> "The work appears necessary but the question arises: why should the expenditure be capitalised if, as we presume, no new assets were created or the lives of existing assets,

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[1] For example, the phrase "or not incurred in providing pipeline services" in the text at the top of p. 46 of Jemena's initial response is attributed to us but we did not use that phrase in relation to the matter cited.

[2] Section 2.1 of the Final Report makes it clear that we did not attempt to interpret the Rules (although we stated our interpretation of the terms *prudence*, *efficiency* and *good industry practice*, as they were not defined in our terms of reference). In this context, the statement on p. 80 of Jemena's *Initial Response* referring to our "interpretation of NGR Rule 79" could be misleading, as we made no interpretation of the rule.

> when repaired, were not thereby extended? We therefore consider that this expenditure should not be added to the regulatory asset base, although there ought to be a mechanism for the business to recover its efficient costs."

Our view of expenditure on the other items for which we recommended adjustments on this account was consistent with this statement.

On p. 171 of the *Initial Response*, our Final Report appears to be misquoted in the first line, as we nowhere stated that "no account should be taken of benchmarking when assessing JGN's forecast expenditure".

On p. 181, para 2 of the *Initial Response* and possibly elsewhere, JGN states that the AER "explicitly excluded examination of JGN's models which contained extensive detail and reconciliation to JGN's forecast" and implies that, as a result, we "took the view that JGN had not provided such information". That is not correct as far as our work is concerned. First, we had no knowledge of any such exclusion by the AER. Second, our view that JGN had not provided the requisite information was not altered by its opex model, which, as we discuss later in this review, neither contained the requisite information nor contains it now. [3]

Some other instances are cited in the text that follows but we did not make an exhaustive search of all statements and so further instances may exist.

1.7 Disclaimer

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 directly or indirectly.

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[3] We refer here to Jemena's operating expenditure model, the most recent revision of which is presented as appendix 9.8 to its *Initial Response.*

2 Approach and General Matters

2.1 General Approach

In outline, our general approach to this reassessment was to reconsider the validity of the following statements, made in our Final Report, in light of the additional information received:

Base-Year Level of Operating Expenditure

In relation to JGN's proposed base-year level of operating expenditure for use when recommending an efficient level of operating expenditure in the next period, we stated in section 4.10 of our Final Report,

> "In concluding our review of Jemena's proposed operating expenditure in the next period, we noted again that, as presented by Jemena, everything hinges on the reasonableness of the base-year level of expenditure and that careful scrutiny of the proposed step changes and adjustments between the base-year level and the proposed level in the first year of the next period is essential if costs in the next period are not to be above efficient levels.
>
> We noted again the lack of disclosure of details of the cost, nature and scope of the proposed projects and programmes in the next period and the consequential lack of ability to confirm the reasonableness of those aspects.
>
> We noted again that we were unable to consider the reasonableness of the unit rates and costs that one would expect to have been applied in the build-up of the expenditure estimate as none was disclosed.
>
> We noted again the lack of reconciliation of costs and the accompanying questions that surround the reasonableness of the overhead allocations and profit margins that have been added to the expenditure estimate.
>
> We noted again that cost efficiency is not demonstrable unless the costs are of measurable inputs struck at market prices, contain an appropriate level of market testing, do not include additional cost allocations or margins other than those that are demonstrated to be appropriate and reasonable, and can be related to measurable or observable outputs.
>
> We therefore recommend that:
>
> (a) the base-year level of operating expenditure be set at $94.7 m as shown in Table 4.4 at the end of section 4.7 of this report prior to the addition of step changes and those items for determination by the AER without review by us; and that
>
> (b) adjustments be made in the requested level of technical step changes, as shown in Table 4.5."

Proposed Capital Expenditure

In relation to JGN's proposed capital expenditure in the next period, we stated in section 6.5 of our Final Report,

> "Again, a common theme in all the expenditure categories reported in this section is the lack of information available on which to verify the scope, necessity, timing and optimality of the expenditure foreseen. In most instances, the planned quantities of routine work were not provided either, making it impossible to verify unit rates.

We appreciate that many of the projects planned for the next period are still under preparation but there must be some that are in an advanced state of planning if their expenditure is to proceed on time in the next period.

In some instances, the existence of business plans was acknowledged in the documentation but they were not provided.

Not all the questions asked were responded to fully, the most that was received generally being summarised tables of options and suchlike without the accompanying detailed assessments that are normally required to demonstrate that the planned expenditure is expected to be accompanied by positive benefits to the business and to customers.

At best, we have been able to conclude (sometimes by giving Jemena the reasonable benefit of doubt) that the work foreseen is reasonable in scope or appears so.

However, in no case have we been able to attest to the cost efficiency of the expenditure because of the lack of information on the details, volumes and costs of planned work.

These points have been made repeatedly in the preceding text.

In addition, we note the following points for the AER's consideration.

(a) No information was provided to us in respect of Jemena's capitalisation policies, raising a question as to the quantum of indirect costs or profit margins that have been added to the stated levels of forecast expenditure.

(b) In general, our view is that expenditure on the ad-hoc repair of mains and services (p. 62) should be expensed not capitalised but the AER may wish to ask for (or make) calculations to assess the impact of the alternatives on customer prices.

(c) It is not clear to us how the stated increase in the cost of international IT services (p. 68) has been incorporated in the capital expenditure estimates.

(d) In our opinion, the arguments advanced by PB tend only to demonstrate prudence in the manner in which the works were identified, planned and executed but do not demonstrate cost efficiency. The latter would require a "bottom-up" appraisal of the expenditure combined, where possible, with reliance, for estimating purposes, on costs derived from competitive processes, together with a justification and reconciliation of any capitalised overheads or profit margins that have been added to the forecast expenditure. [4]

(e) Given the conclusions reached in section 4 of this report in relation to the implications of the contractual arrangements and related party transactions that apply in Jemena's case, a reconciliation of the type just referred to appears desirable to support the business's claims.

(f) The expenditure incurred to remedy damage to pipelines resulting from subsidence in mines appears necessary but the question arises: why should the expenditure be capitalised if, as we presume, no new assets were created or the lives of existing assets, when repaired, were not thereby extended?

(g) It is not clear to us why expenditure related to "access arrangements" should be capitalised (its inclusion in the schedule of capital expenditure suggests that that is intended).

(h) 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.

"Taking all matters reported in this section into consideration and thus concluding that the efficiency of the capital expenditure forecast for the next period is not adequately

[4] Although we did not say so in our Final Report, this general requirement may be true of opex also.

demonstrated by Jemena, and on the assumption that a margin that constitutes a profit element has been incorporated in all the stated levels of incurred expenditure, we recommend that Jemena's forecast level of expenditure be accepted as reasonable in terms of scope, subject to the adjustments shown in Table 6.4. The adjustments include a reduction of **[c-i-c]**% to remove the assumed profit margin, pending receipt of explanations from the business sufficient to clarify the capitalised indirect costs and margins and to establish the cost efficiency of the expenditure.

No adjustment has been incorporated in relation to (b) or (c) above.

Expenditure on mines subsidence work has been omitted on the assumption that it should not be capitalised.

The reverse gas flow item is deleted pending further explanation.

The "integrity digs and integrity management" items are presented as capital expenditure but do not appear to relate to the addition of a new asset or to remedial work for the extension of the life of an existing asset and we therefore consider that they ought not to be added to the regulatory asset base but expensed.

The adjustment to the aged residential meter replacement programme is made on the ground that only a portion of the meters, not all, will require replacement after 20 years.

No adjustment is made in relation to the aged industrial and commercial meter replacement programme on the assumption that the business provides, to the AER, a satisfactory justification for this programme, which totals $23.5 m. (In addition, it is not clear to us why sampling costs would be capitalised and added to the regulatory asset base under the other meter replacement expenditure categories but we were not able to clarify their extent in order to remove them. See footnote 104.)

The adjustments concerning the customer services metering and billing contingency and the organic growth in IT infrastructure have been made pending the provision of clarifications to the AER by the business.

Expenditure on market changes and access arrangements has been left for the AER to consider, noting our query in (g) above.

Expenditure on motor vehicle fleet replacement has been reduced to the level in the present period, pending the provision of clarifications to the AER by the business.

Expenditure on workstations for additional FTEs has been removed, consistent with our assessment of the proposed step changes in operating expenditure.

The adjustment of the **[c-i-c]**% profit mark-up will need to be confirmed by the AER once a justification and reconciliation of any capitalised overheads or profit margins that have been added to the expenditure has been received from the business.

The AER could also consider an adjustment to remove the 6% overhead allocation that is believed to have been included in the estimates pending receipt of the justification and reconciliation from the business. However, we have not shown such an adjustment as, in principle, the capitalisation of overheads attributable to the construction and putting into operation of new fixed assets is acceptable (provided the amounts are identified and not also recovered through the operating expenditure estimate) whereas the incorporation of a profit margin or asset management margin for a related party, applied to the whole of the expenditure programme, would appear not to be justifiable for the reasons we have set out in section 4.6 of this report."

Evidence of Cost Efficiency

As was made clear in our Final Report, a combination of the lack of information available (on which to verify the scope, necessity, timing and optimality of the expenditure incurred or forecast) and the related party transactions involved proved particularly problematic for us in our review of JGN's original proposal. In this reassessment, therefore, we were particularly

interested in receiving the information that we identified in our Final Report as needed for a full assessment of the proposed expenditure to be made, *viz.:*

(a) Business cases setting out in each case a description of the proposed work, the need for it, an explanation of how it fits in with long-term network development plans, the options considered, identification of the least-cost option (considering all costs, not only initial costs), the reasons for the selected option, the optimality of timing or staging, consideration of trade-offs if any between capital and operating expenditure, risk analysis, discounted cash flow analysis and any necessary appendices such as network analyses;
(b) Cost estimates giving details of the cost of the major components, on-costs and contingencies if any in each case;
(c) Information on the extent of competitive tendering of work to unrelated parties; and
(d) Evidence of the reasonableness of application of margins applied by related parties and of the rates of capitalisation of overheads in relation to capital works.

We describe in the following sections of this review the additional information received and the extent to which we considered it adequate for our purposes.

2.2 Methodological Considerations

At the same time, we considered JGN's comments in its *Initial Response* in relation to the methodology we had applied in our review. We also considered the opinion from Mr Geoff Swier on this and related matters and we address the material points raised in that opinion in section 3.3 of this report.

2.3 Information Received

The principal documents referred to us for review were JGN's *Revised Access Arrangement Information*, its *Initial Response* to the draft decision and the following supporting appendices: 3b.1 (Parsons Brinckerhoff review of major current non-routine capital expenditure projects), 3b.2 (Napier & Blakeley review of cost modelling and estimating processes for routine capital expenditure projects), 3b.4A, 3b.4B and 3b.4C (business cases relating to subsidence connected with the Appin mine), 3b.4H (Evans & Peck report on a project cost variance), 3b.8 (motor vehicle replacement capital expenditure), 3b.9 (metering replacement capital expenditure), 3b.11 (procurement policy), 3b.12 (business cases dated March 2010), 9.4A (application of outsourcing assessment framework), 9.6 (direct cost – "WBS 500 series" – volume and activity forecast) and 9.8 (a spreadsheet used to apply growth factors, inflation factors and other factors to base data entered from other sheets that were not provided and to generate the summary tables presented in JGN's submission).

The following appendices referred to us provided new information on the capitalisation of expenditure: appendices 3a.4, 3b.3, 3b.4, 3b.4D, 3b.4E, 3b.4F and 3b.4G.

The following appendices referred to us provided further background information but were not technical in nature: 9.2 and 9.3 (related to PricewaterhouseCoopers' work), 9.4B, 9.4C, 9.4E, 9.4F, 9.4G, 9.4H and 9.4J [5] (related to the outsourcing contract and associated margins), 9.5 (step changes) and 9.7 (a board paper).

We also received and reviewed appendix 9.1 (Swier's opinion on the approach to reviewing operating expenditure forecasts) as mentioned above.

[5] Appendix 9.4J, Evans & Peck's report on industry margins, appears to be listed on p. 291 of Jemena's initial response as appendix 9.4K.

This information was followed by JGN's responses to questions sent to it by the AER on 31 March, 12 April, 13 April and 23 April, 28 April and 3 May, by JGN's submission on 19 April of a further opinion from Ernst & Young on the capitalisation of costs and by JGN's submission on 23 April of cost estimates to accompany the business cases received with the original information.

In terms of new information, we noted the following salient points in respect of the documents.

(a) The *Revised Access Arrangement Information* deals with operating expenditure in the next period on pp. 16 to 18 and with capital expenditure in the next period on pp. 19 to 24. The material presented was limited to updated summary tables of operating and capital expenditure, a table of proposed operating expenditure performance indicators and, in the case of capital expenditure, a table summarising the capital expenditure forecasting methods used. The latter table appeared merely to confirm the explanations given to us earlier and did not provide any other quantitative information.

(b) The *Initial Response* deals with capital expenditure in section 3b and with operating expenditure in section 9 and we discuss the relevant matters later in this report. The introductory section of the *Initial Response* was also noted. We did not review the other sections of the *Initial Response* as they deal with matters outside the scope of our work.

(c) The reports by Parsons Brinckerhoff on non-routine capital expenditure and by Napier & Blakeley on routine capital expenditure are discussed later in this report, along with the various business cases provided separately (noting that three of the business cases referred to subsidence connected with the Appin mine, eight of the ten in appendix 3b.12 referred to capacity development projects, the ninth to a POTS upgrade and the tenth to the Penrith-Emu Plains primary mains extension and pressure regulating station project that had been explained to us earlier). Appendix 3b.4H (Evans & Peck's report on a project cost variance) appeared to be peripheral to our task but appendices 3b.8 (motor vehicle replacement capital expenditure) and 3b.9 (metering replacement capital expenditure) provided new information on matters in respect of which adjustments had been recommended in our Final Report. We discuss them later in the report.

(d) Appendix 3b.11 summarising JGN's procurement policy was noted, as was appendix 9.4A relating to the outsourcing arrangements with JAM. However, no quantitative information on the expenditure projections was included in either of them.

(e) The "volume" forecasts in appendix 9.6 did not contain information on expenditure, only information on work volumes but table 9-1 in JGN's response to the AER's questions of 12 April provided additional information on costs and volumes of expenditure in the "WBS 500" series (operating and maintenance expenditure).

(f) Earlier versions of the spreadsheet in appendix 9.8 had been received in 2009 and it was again noted that the sheet is used to apply growth factors, inflation factors and other factors to base data entered from other sheets and to generate the summary tables presented in JGN's submission. The underlying worksheets (which presumably generate the expenditure forecasts under each heading — engineering support, operations, etc) were again not provided, nor was any equivalent quantitative information on the breakdown of those expenditure items.

(g) New information on the capitalisation of costs including a further submission received on 19 April is discussed later in the report.

(h) No descriptive or detailed technical material was found in the "further background information" referred to above.

(i) Appendix 9.1 (Swier's advice on the approach to reviewing operating expenditure forecasts) is discussed later in the report.
(j) JGN's responses to the AER's questions, where relevant to our work, are discussed later in the report.

Responses that had been received from JGN in December 2009, too late to be considered in our Final Report, were also reviewed although we noted that the information received then in relation to the percentages of work outsourced by competitive tender have since been amended by JGN. [6]

2.4 Submissions from Stakeholders

The AER received 11 public submissions from stakeholders, including one from JGN. JGN's submission did not appear to contain information of relevance to our work that had not already been received through the AER.

The submission from the Energy Markets Reform Forum provided various opinions on the draft decision and on our Final Report, mostly supportive. Various points were noted in relation to past capital expenditure and other matters that either we do not re-examine in this report or that are outside the scope of our review.

The submission from the Energy Users' Association of Australia disagrees with the AER's statement, "The AER has considered the results of PB's benchmarking study. The AER agrees with the Wilson Cook report that such analysis has its limitations and cannot alone be used to assess whether capital expenditure complies with r. 79 of the NGR." It (the EUAA) says,

> "We disagree both with the AER's comments and those of Wilson Cook that it referred to. The work done by PB may have been limited, but was very similar to the work done by the AER itself on the Queensland and South Australian electricity distribution revenue determinations. This work was done in relation to operating expenditures but the methodology was similar, in fact, in their work for JGN, PB went somewhat deeper by also incorporating volume throughput as an expenditure driver, following the methodology used by Ofgem in the UK for electricity distribution revenue benchmarking." [7]

Our view is that benchmarking is not particularly relevant to capital expenditure. Furthermore, our preliminary review of the EUAA's version of capital expenditure benchmarking (which appears to apply an upper quartile approach that it claims is applied by Ofgem in the UK) would need further review and probably modification before being relied upon.

The other submissions did not appear to contain material that needed our further detailed consideration.

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[6] We refer to the responses dated 11 December 2009 and 18 December 2009.

[7] P. 12 of the EUAA's submission.

3 Operating Expenditure in Next Period

3.1 JGN's Revised Proposal

JGN's revised operating expenditure proposal for the next period is summarised in the Table 1. The table shows a 3.7% increase in total operating expenditure over the next period from the expenditure in the original proposal, when carbon costs are excluded. In addition, material movements in the largest line items — the base O&M and the base A&O — are evident in total and in their constituent elements. Explanations for the movements were sought by the AER in its questions of 31 March. The explanations given by JGN did not appear to be technical in nature and have not been examined by us.

Base Year Level

There is a change in the base year level of operating expenditure from $131.3 m in the original proposal to $130.6 m in the revised proposal shown in the table, including an increase of $**[c-i-c]** m in the base level of O&M expenditure (from $**[c-i-c]** m to $**[c-i-c]** m), an increase of $2.3 m in the base level of A&O expenditure (from $24.3 m to $26.6 m), an increase in the cost of UAG of $0.5 m and an increase in "margin" of $**[c-i-c]** m, offset by a reduction in the proposed step changes of $3.8 m, the removal of an amount of $2.5 m for self-insurance [8] and a reduction in marketing costs of $2.0 m. [9] [10]

The movements in the base year O&M appear to drive the movements in the next period, as the percentage increase is the same in the base year and in the next period as a whole. However, that is not the case in respect of A&O, as the percentage increase in the next period is twice that in the base year. We did not examine the reasons for that, as the matter does not appear to be technical in nature.

Opex in Total over Next Period

There is an increase in the level of operating expenditure in total over the next period when carbon costs are excluded (from $701.6 m in total in the original proposal to $727.2 m in total in the revised proposal), including an increase of $**[c-i-c]** m in the base level of O&M expenditure, an increase of $10.6 m in the base level of A&O expenditure, an increase in the cost of UAG of $8.1 m and an increase in "margin" of $**[c-i-c]** m, partially offset by a reduction in the proposed step changes of $7.2 m, a reduction in marketing costs of $7.3 m, the removal of site remediation costs of $**[c-i-c]** m and reductions in the cost of government levies, self-insurance and debt raising of $3.0 m in total. [11]

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[8] The treatment of self-insurance in the base year costs in the revised AAI recognises that such costs were not incurred in the base year.

[9] Overall, there is a reduction in the base year cost of $0.7 m or 0.5% compared to the original proposal.

[10] The terms "O&M" and "A&O" (and all other terms used in this report) have the meanings defined in our Final Report.

[11] Overall, there is an increase, when carbon costs are excluded, in the total level of operating expenditure over the next period of $25.6 m or 3.6% compared to the original proposal, although this is disguised by the removal of carbon costs of $39.8 m when considering operating expenditure in total.

Table 1: JGN's Revised Operating Expenditure Proposal ($2010 m)

FY ->	2009 (Base Year)	2010	2011	2012	2013	2014	2015	Total for next period	Change fm orig. AAI	Pct incr.	Change in base year	Pct incr.
Direct JAM costs												
Engineering	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	-21%	c-i-c	-17%
Operational support	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	4%	c-i-c	9%
Market, billing and metering	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	-19%	c-i-c	-13%
Repairs and maintenance	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	-1%	c-i-c	-4%
IT costs	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	15%	c-i-c	5%
Other direct JAM costs	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	-83%	c-i-c	-82%
Indirect JAM costs	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	111%	c-i-c	111%
Jemena ESF costs (via JAM)	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	836%	c-i-c	836%
Base O & M a/	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	7%	c-i-c	7%
Step changes b/	c-i-c	c-i-c	2.5	2.4	2.8	2.4	2.8	12.8	(7.2)	-36%	(3.4)	-92%
Site remediation	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	-100%	c-i-c	0%
Margin b/	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	4%	c-i-c	2%
Total O & M	83.4	82.2	85.3	87.4	91.5	94.1	97.9	456.3	17.1	4%	1.5	2%
Admin & o/hd: base cost c/	26.6	25.2	25.5	26.0	26.9	28.0	28.9	135.2	10.6	8%	2.3	9%
Admin & o/hd: one-off events	(1.7)	.0	.0	.0	.0	.0	.0	.0	.0		(.0)	2%
Admin & o/hd: step changes	.0	.0	.4	.4	.5	.5	.5	2.3	(.0)	-1%	(.4)	-100%
Government levies	3.1	3.1	3.1	3.1	3.1	3.1	3.1	15.4	(.2)	-2%	(.0)	-2%
Marketing	6.2	6.8	6.8	6.8	6.8	6.8	6.8	33.8	(7.3)	-18%	(2.0)	-24%
UAG	13.0	13.8	13.4	13.4	13.0	12.8	12.6	65.2	8.1	14%	.5	4%
Carbon costs	.0	.0	.0	.0	.0	.0	.0	.0	(39.8)	-100%	.0	0%
Self insurance	.0	2.4	2.4	2.4	2.4	2.4	2.4	12.1	(.2)	-1%	(2.5)	-100%
Debt raising	.0	.0	1.3	1.4	1.4	1.4	1.4	6.9	(2.6)	-27%	.0	0%
Total non- O & M	47.2	51.3	52.9	53.5	54.0	54.9	55.7	270.9	(31.3)	-10%	(2.2)	-4%
Total	**130.6**	**133.4**	**138.2**	**140.9**	**145.5**	**149.0**	**153.6**	**727.2**	(14.2)	-2%	(.7)	-0.5%
Increase (decrease) excluding carbon costs									25.6	3.6%	(.7)	-0.5%
Increase in 'Base O&M plus Base A&O'									c-i-c	c-i-c	7.1	7.4%

Source: Revised AAI and, for the first eight rows, the "detailed data table" in appendix 9.8. Figures may not add due to rounding.
a/ The "Base O & M" total for FY 2009 includes a deduction of $2.58 m for "one-off events" per table 5.3 in the revised AAI.
b/ There are discrepancies in the base year data between Jemena's revised AAI and appendix 9.8, its opex model.
c/ The "Admin & o/hd: base cost" figures in the original AAI have been amended as advised by Jemena on 27 November 2009.

JGN's Claim of Base-Year Efficiency

JGN summarises in table 9.8 of its *Initial Response* the reasons why it considers the AER can infer that the proposed base-year level of expenditure is efficient. It states the relevant considerations as follows:

(a) "Past trends since the network became subject to economic regulation under the Gas Code and prior to the earlier access arrangement period(s), including incentives established in prior access arrangements and evidence on opex productivity outcomes." (It notes in support of this that it has been subject to independent economic regulation since 1996; that for previous access arrangement periods — 1996-2001 and 2000-05 — the IPART regulatory framework included a fixed opex allowance which provided an incentive for JGN to become more efficient over the period and capture the gains (and that implicit in the 2000-05 allowance was a 3% efficiency target); that IPART determined a price cap giving JGN an incentive to grow output while being constrained to the approved opex forecast, thereby improving productivity; and that the Economic Insights total factor productivity study shows that JGN's opex partial factor productivity benchmarks compare favourably in earlier periods.)

(b) "Trends and outcomes for opex productivity changes in the current access arrangement period, including how the regulator established the opex forecast and the

price control and incentives these created and other productivity factors incorporated by the regulator." (It notes in support of this that for the current access arrangement period, IPART also determined a fixed opex allowance and a price cap, and similar incentives operated (and for the current, IPART set a 1.5% efficiency target); that this target was lower than the previous access arrangement period in recognition of JGN's maturity as a business and its proximity to the efficiency frontier; and that JGN experienced significantly lower demand than forecast, its revenue was constrained, and that it therefore had an even stronger incentive to reduce costs.)

(c) "'Out-turn' of actual opex against the opex forecast provided by the regulator." (It notes in support of this that its expected opex for the current access arrangement period is 5.6% less than IPART's allowance).

We note these considerations but our task was to assess the efficiency of the proposed operating expenditure from a technical standpoint, and this we proceed to do in the following section of the report.

3.2 Assessment of Base-Year Level

Approach

The approach that we took to the review of operating expenditure in our Final Report was to consider, first, the reasonableness of the level of operating expenditure in the base year (FY 2009) and then the reasonableness of JGN's proposed step changes. We considered at that time that insufficient detail had been provided by JGN of the nature and quantity of the projects and programmes undertaken in the base year or planned to be undertaken in future years for us to assess its efficiency. We therefore recommended in our Final Report that the level of operating expenditure for the base year be determined from a comparison of "base O&M plus base A&O" expenditure as allowed by IPART on one hand and as incurred or proposed by JGN on the other, and that the lowest of these be adopted. We recommended the removal of the item titled "margin". The resulting level of expenditure was summarised in Table 4.4 of our Final Report. We then proceeded to examine the proposed step changes from the base-year level to later years.

We therefore considered first, in this review, whether JGN had provided sufficient detail of the nature and quantity of the projects and programmes undertaken in the base year or planned to be undertaken in future years for us to assess its efficiency.

JGN's Operating Expenditure Model

We reassessed our conclusions in light of the additional information provided by JGN but, before proceeding, we note the following point. A possible implication in JGN's *Initial Response* is that appendix 9.8 (its operating expenditure model) explains the operating expenditure projections or should explain them to our satisfaction. A further possible implication is that sophisticated operating expenditure modelling guarantees efficiency. We do not dispute that JGN's operating expenditure modelling was comprehensive but the model *per se* is a calculating tool and not a guarantee of efficiency. Instead, like all such models, its output is determined by the assumptions made. It is those assumptions that we wished to review and it is those assumptions that were not provided originally and that are still not provided, the sole breakdown of O&M expenditure in the model being into the five broad categories that appear at the top of Table 1 and which are introduced into the model as line items from another source. No further details of their composition are given in the model.

Data on Work Volumes

We received and reviewed appendix 9.6 to the *Initial Response*, noting that its principal purpose was to present volumes of work activity for the purpose of projecting operating expenditure in the **next** period on a "business as usual" basis. Our purpose was not to examine the roll-forward of operating expenditure into the next period but to review its base year level. However, we noted that the appendix also presented a reasonably comprehensive summary of activity levels from around FY 2001 onwards under various preventive and corrective maintenance headings, together with explanations of the reasons for movements projected to occur in the volumes of certain of these activities between the present time and the next period.

The explanations just referred to related, in the main, to a future period and their reference to the base year could only be inferred.

Costs in Relation to Work Volumes

The "volume" forecasts in appendix 9.6 did not contain information on expenditure, only information on work volumes. However, table 8-1 in JGN's response to the AER's questions of 12 April shows work volumes in hours for the first two lines in Table 1 above and work volumes expressed in the number of activities for the third and fourth lines in Table 1.

Table 9-1 in the same response shows the volumes and expenditure for each of the maintenance activities that comprise lines three and four in Table 1.

Engineering, Technical, Asset Management, Compliance and Operations Support Work

The hours stated for the first two lines in Table 1 (engineering, technical, asset management, compliance and operations support work) are identical in all years from and including FY 2009 to FY 2015. These line items together account for 21% of base O&M expenditure in the base year. We noted in this context that additional man months of technical input had been requested in relation to several of the step changes that we had assessed in our Final Report but that, in those instances, we had argued that the necessity for the additional technical labour inputs had not been demonstrated. We also noted that the cost estimate for these two lines had been reduced by $4.1 m since the original AAI. However, we could not find any new information in support of the claim that expenditure in the base year under these two categories was efficient and that the man-hours budgeted were efficient.

Repairs and Maintenance

The third and fourth lines in Table 1 comprise expenditure on repairs and maintenance and account for 37% of base O&M expenditure in the base year. The information was helpful in gaining a fuller understanding of the nature of O&M expenditure although these were the only line items for which an assessment of need for the work involved — specifically, the need for the projected movements in work volumes from the base year level — was provided.

IT Operating Costs and Other Line Items

No new information was provided in relation to the fifth line in Table 1 relating to IT operating costs — it accounts for 20% of base O&M expenditure in the base year — or for the remaining line items that make up the balance of 22% of base O&M expenditure in the base year.

Comment

We note again that the explanations just referred to related, in the main, to a future period and their reference to the base year could only be inferred.

In addition, whilst it would have been possible to calculate rates per man-hour in relation to the first two expenditure line items or rates per work order in relation to the third and fourth expenditure line items from the additional information, that would not have assisted our analysis as there is a mix of activities involved in all cases.

Out-Sourcing by Competitive Tender

JGN has provided information on the extent to which it tenders out its operating expenditure work competitively to unrelated parties. This information was provided on 11 December 2009, too late for consideration in our Final Report. It states that **[c-i-c]**% of total operating expenditure is tendered out in this way. The figure was confirmed in JGN's response of 9 April to the AER's questions of 31 March, p. 13.

The corresponding proportion of the forecast expenditure may be considered to reflect market-tested rates.

The efficiency of work undertaken internally or contracted to related parties or not contracted competitively cannot be assessed from the data provided.

We noted JGN's statement in information that it supplied on 11 December 2009 that **[c-i-c]**- and that it **[c-i-c]** although no information was supplied to substantiate the latter claim, except the benchmarking material that JGN submitted with its original AAI.

Asset Management Plan

We then referred back again to JGN's asset management plan to see if it could be used in conjunction with the new information to analyse the nature and cost of the work further and to determine its efficiency but we noted again, as in our Final Report, that the asset management plan is largely, if not entirely, silent in relation to cost and makes no connection between the items discussed and the costs of the work involved in the next period.

Benchmarking Studies

We then considered again whether the benchmarking studies presented by JGN and discussed in our Final Report could be used to help determine efficiency.

Three "benchmarking" studies were presented by JGN with its original AAI — one was a report on total factor productivity — in support of its operating and maintenance expenditure and we presented our assessment of them in section 4.4 of our Final Report, concluding at the end of that section:

> "As a general principle, we considered that benchmarking is likely to be less robust if disparate entities are compared or if "related party" transactions are involved as, in the latter case, the comparisons may be made with entities whose efficiency is not readily demonstrated.
>
> We also consider, as a general principle, that benchmarking is best presented as an accompaniment to other substantiating analyses such as a "bottom-up" analysis of operating costs.
>
> Overall, we accept that the operating expenditure benchmarking analysis presented by Jemena suggests, *prima facie*, that the business operates with a cost structure within the levels of confidence in the benchmarking. However, the lack of a "bottom-up" analysis of operating costs related directly to the cost-efficiency of the services offered and supporting this finding ought to be noted".

However, we did not receive any new information that caused us to change this assessment.

We noted from Swier's opinion (see below), p. 17: "Opex cost benchmarking studies and TFP studies are not sufficiently reliable to use as a forecasting approach on their own but are useful as a separate check on other forecasting approaches". We agree with that view.

We also note from JGN's *Initial Response*, pp. 170-171, that JGN does not agree that the AER and Wilson Cook "should take no account of benchmarking when assessing JGN's forecast expenditure". We must point out that nowhere in our Final Report did we make such a statement or anything like it.

3.3 Swier's Opinion

We then considered whether Mr Geoff Swier's opinion — see appendix 9.1 to JGN's *Initial Response* — ought to cause us to change our view. Swier said he was asked:

> "to provide an expert opinion on what approaches to forecasting operating expenditure (opex) would result in a forecast of operating expenditure: (a) 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; (b) that will or is likely to contribute to the achievement of the national gas objective; (c) that will or is likely to give effect to the revenue and pricing principles; and (d) that is arrived at on a reasonable basis and represents the best forecast or estimate possible in the circumstances.
>
> JGN has also asked me to identify the strengths and weaknesses of these forecasting approaches against (a) to (d) above.
>
> I was asked to review: [a] revealed efficient cost approach, a bottom up approach or approaches, a forecasting approach as adopted by the AER for the JGN AA draft determination and any other methods or methodologies I considered relevant…
>
> I was asked an additional question which is set out in Annex 3 and is answered in section 4." [12]

We reviewed his terms of reference as prepared by JGN and appended to his report (annex 2). The only place where our work was mentioned directly in the terms of reference was in section 3 in which the third bullet point states:

> "AER's draft decision and the associated Wilson Cook report; in particular to Wilson Cook's definition of the lowest sustainable cost test within rule 91 ('an important element of r. 91 of the NGR is balancing prudence and efficiency, culminating in the lowest sustainable cost of delivering pipeline services')".

In fact, the definition cited is not taken from our Final Report but from the AER's draft decision, p. 177 (footnotes omitted):

> "9.6.1.1 Interpretation of lowest sustainable costs
>
> "Rule 91 of the NGR requires operating expenditure to 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. Noting that the terms included in r. 91 of the NGR are not defined in the NGR, the Wilson Cook report discusses its technical application of prudence, efficiency, good industry practice and lowest sustainable cost. An important element of r. 91 of the NGR is balancing prudence and efficiency, culminating in the lowest sustainable cost of delivering pipeline services. In brief, the lowest cost option of a particular project or program could only be considered sustainable if a long-term assessment of costs is undertaken. The Wilson Cook report states:
>
> 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

[12] Source: Swier's report.

> "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.
>
> The AER considers that the Wilson Cook report's definition of lowest sustainable costs is appropriate for the purpose of assessing JGN's proposed operating expenditure."

This appeared to be another instance in which our work was not cited accurately by JGN. [13]

Two main matters appear to be raised in the Swier report as far as our work is concerned: ensuring efficiency, both productive and dynamic; and the derivation and suitability of "bottom-up" information, both base year and forecast. Dealing with these in turn:

Efficiency

The main thrust of the report in relation to efficiency is that the approved opex forecasts should (but, by implication, do not) include provision and incentive for the business to pursue dynamic efficiency, i.e., to spend on technological and managerial innovations and on items that may be considered 'non-essential discretionary costs' of which he gives examples in a footnote.

Swier concludes:

> "45. In summary, while Wilson Cook's interpretations of sustainability, efficiency and prudency are reasonable from a technical standpoint, I consider their interpretation is overly narrow. "Lowest sustainable cost" and "prudency" must be considered within a broader economic framework that in my view is implied by the NGL and NGR, and by economic theory and practice. Amongst other things, it should take account of dynamic efficiency as well as productive efficiency. "Prudency" is not simply "technical prudency" – such as prudent decisions on how to manage or maintain a particular asset. Prudency includes prudent commercial decision making by managers, such as balancing the needs of the present with preparation for the future.
>
> 46. Therefore, from an economic standpoint, I disagree with AER's conclusion in its draft decision on the JGN Access Arrangement that Wilson Cook's definition of lowest sustainable cost is appropriate for the purpose of assessing JGN's proposed operating cost."

We have no problem with the need for both productive and dynamic efficiency in business planning and forecasting and budgeting, but we believe that the extensive discussion and conclusions about appropriate definitions of prudence, efficiency and lowest sustainable cost given on pp. 5 and 6 of our Final Report adequately incorporate the concept of efficient provision for the future.

Related to this is the statement in para 31 of Swier's report concerning the disallowance of margins applied to the asset management agreement and borne by JGN:

> "From an economic standpoint, the AER's actions in deducting the margin on the basis that inadequate information was supplied, lacks logic and is inconsistent with the normal approaches to forecasting. Therefore, the resulting forecasts may not be arrived at on a reasonable basis, as required by the Rules."

As set out in the Final Report, our view is that JGN had not provided evidence that demonstrated that the margins were reasonable and appropriately applied. We therefore

[13] See section 1.6 of this report.

wrote on p 48 of our Final Report (in relation to capital expenditure, but the principle is the same): '… a justification and reconciliation of any capitalised overheads or profit margins that have been added to the expenditure would need to be provided.'

"Bottom-up" Analysis and Forecasting

Swier reviewed several other determinations of regulatory bodies that had obtained our advice to assist a definition of a "bottom-up" analysis. He considered, for example, that our approach in a determination in relation to EnergyAustralia was reasonable "because it was checking the detailed application of EnergyAustralia's forecast approach." He considered that this was an example of a "bottom-up" approach.

However, because our view of the manner in which JGN's forecasts were made was such that we could not examine them in the detail required to assess efficiency, we wrote on p. 13 of our Final Report, following an extensive discussion of the issues:

> "Several studies have been relied upon to claim that the cost of the services is efficient and we discuss them later in this report although evidence of comparative positions (made in the studies) does not establish efficiency *per se*; and such studies ought to be only an accompaniment to a detailed "bottom-up analysis" of the expenditure. No such analysis was made available for our review.
>
> To enable the questions asked of us to be addressed the business would need to have provided detailed analyses of JAM's costs to deliver the services."

Swier concludes:

> "In order to distinguish between the approach adopted by Wilson Cook and the AER for the NSW [electricity] distribution business and the approach suggested by Wilson Cook in the JGN Review (but not taken forward by AER), I will call the former a "bottom up review" and the latter an "Independently Derived Bottom Up Review."

In doing so, Swier identifies a new type of review that he suggests would be costly and time-consuming to carry out. We agree. However, a more comprehensive search of our use of the term "bottom-up" in relation to the analysis of data to form an opinion about the efficiency of past or future expenditure would show a consistency that his report does not acknowledge, and in particular, that it is not '**independence**' that we seek but adequately detailed **information** that we would expect to be available and that we would expect to be provided — and, in virtually all other cases in our experience, was so provided.

For example, from our Final Report of June 2009 to the ERA on Western Power's expenditure, p. 10*:*

> "Reasonableness of Aggregated Projections
>
> Where possible, we reviewed Western Power's expenditure proposals from a "top-down" perspective as well as a "bottom-up" perspective. The "bottom-up" approach was made by considering the build-up of both capex and opex from projects, programmes and past expenditure levels. The "top-down" approach looked at the level of expenditure as a whole in the context of the size and nature of comparable networks and the circumstances of Western Power. (Footnote: "Top-down" assessments were restricted to opex.)
>
> As a general principle, we retained the view that whilst each individual project or programme may be justified when considered in isolation, it is still necessary that the aggregated expenditure projection be reasonable. The aggregation of estimates for individual projects and programmes without adequate consideration of their impact in total, or of cost savings in other parts of the business, generally does not lead to an efficient level of expenditure. (Footnote: Amongst other reasons, this is because the individual components interact, or ought to do so.)"

And from our Final Report of November 2008 to the AER on the ACT and NSW electricity DNSPs' expenditure, vol. 1 p. 15:

> "Reasonableness of Aggregated Projections
>
> Where possible, we reviewed the DNSPs' expenditure proposals from a "top-down" perspective as well as a "bottom-up" perspective. The "bottom-up" approach was made by considering the build-up of both capex and opex from projects, programmes and past expenditure levels. The "top-down" approach looked at the level of expenditure as a whole in the context of the size and nature of each network and the circumstances of each DNSP. (Footnote: "Top-down" assessments were restricted to opex and non-system capex, as described in section 3 of this volume.)
>
> As a general principle, we retained the view that whilst each individual project or programme may be justified when considered in isolation, it is still necessary that the aggregated expenditure projection be reasonable. The aggregation of estimates for individual projects and programmes without adequate consideration of their impact in total, or of cost savings in other parts of the business, generally does not lead to an efficient level of expenditure. (Footnote: Amongst other reasons, this is because the individual components interact, or ought to do so.)"

Ibid, vol. 2 p. 41 in relation to EnergyAustralia:

> "Basis of [Non-System Capex] Forecast
>
> EnergyAustralia has generally used a "bottom-up" approach to forecast its non-system capex."

Ibid, vol. 2 p. 42:

> "The following sections of the report consider the proposed level of non-system capex from the standpoint of a "bottom-up" review of specific expenditure categories and projects."

In the last example, we proceeded to review expenditure under five main categories; one, IT, was further subdivided in to eight categories.

The making of "bottom up" reviews was referred to in many later places.

Conclusion in Relation to Swier's Opinion

To reiterate the main point made above, we did not claim that a "bottom-up" assessment should be independent: we merely asked for sufficient information for us to be able to form an opinion on the proposed expenditure and it was not provided.

A wider reading of our work by Swier would have shown a consistency of view on our part that when carrying out expenditure reviews of this type, a reviewer needs to be provided with sufficient details of the make-up of the material expenditure items to form an opinion about their efficiency. Instead, he writes as though we advocated that the AER should have undertaken or commissioned a comprehensive, detailed independent investigation of JGN's figures. The inference of that seems to be that our requirement for detailed information was either ill conceived or that it should have been spelled out by the AER *ab initio*. In fact, we made no requirement for independent investigation.

Other points that we note in relation to his work are as follows.

(a) Nowhere in our work did we state or intend that only a short-term view of costs and benefits should be considered. Any inference or statement that we proposed such an approach is incorrect. [14]

[14] Swier's words in relation to our definition of 'lowest sustainable cost' implies that such a criterion is inadequate, even though we did not intend it. He wrote,

(b) How the business allocates its resources to the many activities that exist will have a bearing on the overall efficiency with which resources are used: and this might be one of the aspects on which a "bottom-up" study would throw light. For example, without detailed descriptive and quantitative information in relation to the proposed expenditure, it is not possible to determine whether trade-offs between capital and operating expenditure have been taken into account. Nor is it possible to determine whether adjustments made in one area require adjustments to be made in another. [15]

(c) Any matters to do with incentivising efficiency of a regulated business are considered by us to be matters for the AER's consideration.

3.4 Conclusion in Relation to Base-Year Level

Efficiency

As before, everything hinges on the reasonableness of the base-year level of expenditure (and careful scrutiny of the proposed step changes and roll-forward method) if costs in the next period are not to be above efficient levels. However, we note again the lack of disclosure of sufficient details of the cost, nature and scope of the proposed projects and programmes in the base year and in the next period and the consequential lack of ability to confirm the reasonableness of those aspects.

We noted JGN's information on the extent to which it tenders out its operating expenditure work competitively to unrelated parties — it states that **[c-i-c]**% of total operating expenditure is tendered out in this way. The corresponding proportion of the forecast expenditure may be considered to reflect market-tested rates but the efficiency of work undertaken internally or contracted to related parties or not contracted competitively cannot be assessed from the data provided. Cost efficiency is not demonstrable unless the costs are of measurable inputs struck at market prices, contain an appropriate level of market testing, do not include additional cost allocations or margins other than those that are demonstrated to be appropriate and reasonable, and can be related to measurable or observable outputs.

We noted JGN's statement in information that it supplied on 11 December 2009 that **[c-i-c]**- and that it **[c-i-c]** although no information was supplied to substantiate the latter claim, except the benchmarking material that JGN submitted with its original AAI.

We accept that additional information has been provided on the composition of parts of JGN's O&M expenditure in the base year, on the volumes of work in certain categories and on the total man hours budgeted in other categories. However, the new information received is insufficient to substantiate the efficiency of the expenditure in the base year from a "bottom-up" standpoint. We note also in this respect:

"45. In summary, while Wilson Cook's interpretations of sustainability, efficiency and prudency are reasonable from a technical standpoint, I consider their interpretation is overly narrow. Lowest sustainable cost and prudency must be considered within a broader economic framework that in my view is implied by the NGL and NGR, and by economic theory and practice. Amongst other things, it should take account of dynamic efficiency as well as productive efficiency. Prudency is not simply technical prudency such as prudent decisions on how to manage or maintain a particular asset. Prudency includes prudent commercial decision-making by managers, such as **balancing the needs of the present with preparation for the future** [our emphasis added].

"46. Therefore, from an economic standpoint, I disagree with AER's conclusion [footnote] in its draft decision on the JGN Access Arrangement [footnote] that Wilson Cook's definition of lowest sustainable cost is appropriate for the purpose of assessing JGN's proposed operating cost."

The preceding paragraph, (no. 44 on p. 8) of Swier's report illustrates his view of the differences between the consequences of pursuing our criteria as he interprets them instead of his.

[15] An example of the latter (in relation to the consequences for operating expenditure of adjusting the aged residential meter replacement programme in the capital expenditure estimates) is reported in our conclusions in section 3.4 of this report.

(a) No analysis or explanation was given of the level of man-hours assumed by JGN in its calculation of the first two line items of base O&M expenditure (engineering, etc and operational support). Thus, other than observing that the level remained unchanged (subject to the additions proposed by JGN in connection with its proposed step changes), we received no information to support an assessment of efficiency of these line items in O&M.

(b) The only instance in which new information was provided that could be used to help determine the efficiency of the base year level of expenditure was in relation to the material describing the movements in levels of repairs and maintenance. However, the explanations in relation to the movements related in the main to movements presently taking place or projected to take place in the next period (as the purpose of the appendix was to support the work-load escalators applied in the forecast for the next period) and not to the base year. Therefore, even in this case, the information was not sufficient for a calculation of efficiency to be made or a conclusion reached.

(c) No new information was provided (and no adequate information was received with the original AAI) to support an assessment of efficiency of the remaining line items in O&M.

(d) In short, the information obtained from appendix 9.6 on volumes and from the response of 19 April on the related costs helped us to understand the nature of the expenditure but without further information, it was not possible to use it to determine base-year operating expenditure efficiency.

We note again that we are unable to consider the reasonableness of the unit rates and costs that have been applied in the build-up of the expenditure estimate (or that apply in the base year) as none was disclosed.

We note from table 9.1 of JGN's response of 19 April to the AER's questions of 12 April **[c-i-c]** that there is a significant cost associated with this item. Appendix 9.6 notes that the driver for this is "aged meter program starting in 2009/10 which will significantly increase the number of re-lights" i.e. when a residential meter (that is presumably outside the house) is replaced, JGN estimates they it will have to re-light the hot water system pilots and that obtaining access to do so will add to costs in a proportion of the cases. This illustrates the difficulty of attempting to carry out expenditure reviews of this type without full disclosure of information as, in this particular case, the lack of information means that an adjustment that is potentially necessary to match the recommended reduction in the level of replacement of these meters cannot be quantified.

We are not able to check for trade-offs between capital and operating expenditure, based on the information available.

We noted from Swier's opinion, p. 17, "Opex cost benchmarking studies and TFP studies are not sufficiently reliable to use as a forecasting approach on their own but are useful as a separate check on other forecasting approaches". We agree with that view.

We noted JGN's statement in information that it supplied on 11 December 2009 that "[the commonly adopted opex forecasting method it has used to forecast its O&M opex — a base year roll-forward approach] relies upon a networks reveal [sic] efficient costs and reasonable expectations of growth and input costs". However, again, no information was supplied to substantiate the claim of efficiency except the benchmarking material that JGN submitted with its original AAI.

We retain doubts in respect of the appropriateness of the **[c-i-c]**% margin added to the cost estimates, in respect of which we set out various points of principle in our Final Report and which we were not required to examine further in this review.

We have not undertaken a detailed analysis or reconciliation of the WOBCA cost categories and their constituent parts. Therefore, a further assumption to be confirmed is that all the expenditure relates to the provision of pipeline services.

For these reasons, we are not able to attest to the efficiency of the base-year expenditure.

Recommended Base-Year Level of Expenditure

As already noted at the beginning of this section of the report, the approach that we took in our Final Report to the review of operating expenditure was to consider, first, the reasonableness of the level of operating expenditure in the base year (FY 2009) and then the reasonableness of JGN's proposed step changes. We considered at that time that insufficient detail had been provided by JGN of the nature and quantity of the projects and programmes undertaken in the base year or planned to be undertaken in future years for us to assess its efficiency. We therefore recommended in our Final Report that the level of operating expenditure for the base year be determined from a comparison of "base O&M plus base A&O" expenditure as allowed by IPART on one hand and as incurred or proposed by JGN on the other, and that the lowest of these be adopted. We recommended the removal of the item titled "margin". The resulting level of expenditure was summarised in Table 4.4 of our Final Report.

Having concluded that we are still unable to attest to the efficiency of the base-year level of operating expenditure, we propose (as an alternative to making no recommendation at all) that the base-year level be determined in the same manner as that applied in our Final Report. Taking JGN's revised expenditure information (including audited results for the base year, FY 2009), the calculated amount is as shown in Table 2.

Table 2: Recommended Base-Year Level of Opex ($2010 m)

	Allowed by IPART	JGN's revised proposal a/	Revised recommended base-year level before addn of approved step changes and other items
O&M base costs b/	82.1	c-i-c	82.1
O&M step changes in base year c/		c-i-c	
Margin b/		c-i-c	
A&O base costs b/	21.9	26.6	21.9
A&O "one-off" events b/		(1.7)	
Marketing	19.8	6.2	e/
Government levies	3.7	3.1	e/
UAG d/	10.4	13.0	e/
Base-year level	137.9	47.2	104.0
Comparative total (see footnote b/)	104.0	c-i-c <-- lowest chosen	

a/ Source: JGN. Based on audited figures for base year (FY 2009).
b/ Considered together when determining recommended level. The margin in the proposal is included in the calculation as JGN says there is an "implicit" margin in the expenditure in previous years and thus implicitly in all statements of expenditure.
c/ Excludes step changes from base year level to next period.
d/ The volume of UAG as a percentage of gas receipts was reviewed in our Final Report but the projected level of expenditure on UAG was not.
e/ Not reviewed by Wilson Cook & Co.

This is prior to the addition of approved step changes and other items that are not reviewed by or reassessed by us.

3.5 Step Changes and Roll Forward

Step Changes

We examined JGN's proposed step changes in our Final Report and were not required to consider them further in this review.

Rolling Forward of Base-Year Level

Certain matters to do with the rolling forward of the base-year level of expenditure were reviewed in our Final Report. We did not examine the reasonableness of the escalation factors assumed for labour, materials and other input costs as other expert opinion had been tabled in relation to them. However, we considered the methodology for escalation reasonable except that the composition of the "general escalation factor" appeared to be inappropriate (although, noting the lack of materiality in that instance, no adjustment was proposed).

We noted several matters for the AER's consideration in relation to roll-forward escalation as set out in our Final Report and we have not received any new information that calls for a re-examination of our conclusions in that regard.

4 Capital Expenditure in Next Period

4.1 JGN's Revised Proposal

JGN's revised capital expenditure proposal for the next period is summarised in Table 3. The table shows an increase of 6% in market expansion capital expenditure, a decrease of 3% in system reinforcement, renewal and replacement capital expenditure and a decrease of 4% in capital expenditure on non-system assets. The overall increase in the level of capital expenditure is $5.6 m or 1%. [16]

Table 3: JGN's Revised Capital Expenditure Proposal ($2010 m)

FY ->	2011	2012	2013	2014	2015	Total	Change fm Original AAI	Pct Change
Market expansion	61.2	73.1	75.0	88.3	96.7	394.3	23.3	6%
System reinforcement, renewal & replacement	80.6	78.4	73.8	65.5	70.1	368.4	(12.6)	-3%
Non-system assets	24.4	18.2	16.7	33.9	34.9	128.1	(5.1)	-4%
Total	**166.2**	**169.7**	**165.5**	**187.7**	**201.7**	**890.8**	5.6	1%

Source: Revised AAI. Figures may not add due to rounding.

The increase in market expansion capex appears to be related principally to a revision in the forecast of new residential connections in FY 2014 and FY 2015. The forecast of new connections for small business customers and demand customers are understood to be unchanged from JGN's original AAI. An examination of the demand forecast was outside the scope of our review and so we have not examined the underlying reasons for the increase further. However, we have reviewed the table of unit rates provided by JGN with its response of 9 April to the AER's questions of 31 March. The rates for FY 2011 are similar to those in the original AAI and which we noted in the Final Report as "within the range we expected". (There is an increase of about 5% in the rates from FY 2011 to FY 2012 that is said by JGN in its response to the AER's question 11(d) of 31 March to be "the result of incorporating adjusted escalators" but we were not required to review the roll-forward calculations and so do not comment further on this increase.) In addition, we noted from p. 7 of JGN's response of 3 May to the AER's questions of 28 April that in FY 2009, **[c-i-c]**% of market expansion capital expenditure was outsourced competitively.

Overall, we conclude that the rates are within a range that we consider reasonable.

The reasons for the reduction in the other two items in Table 3 were not reviewed. However, we noted JGN's statement on p. 44 of its *Initial Response* that the new expenditure projection "reflects detailed costings for near-term projects that have further progressed through the capex gating process since JGN's original proposal was submitted to the AER and updated escalators and demand forecasts" This statement is repeated later in the *Initial Response*, e.g. on p. 49.

[16] There is an error in Table 3-4 of Jemena's initial response as the differences in the table are shown in dollars but stated to be in percentages. In addition, we have assumed that references in the table to "March 2009" should be to "March 2010".

4.2 General Level of Efficiency

On p. 50 *et seq* of its *Initial Response*, JGN re-stated the factors influencing its capex in the next period. Then, on p. 52 *et seq*, it states in relation to cost estimating,

> "JGN and JAM employ the gating process to ensure efficient costing and delivery methods for projects that have been approved by JGN prior to the release of funding for project delivery.
>
> JGN's budget cost estimate for forecast capex [is] derived from detailed cost estimating models. The budget estimate is built up on internal costs, contractors, construction and detailed design if complex, materials and restoration.
>
> As discussed below, JAM competitively tenders for construction and detailed design for **all** [our emphasis] projects related to system reinforcement, renewal and replacement capex and market expansion capex.
>
> The cost results from the tenders for these projects are then used to forecast the cost for construction and detailed design of similar projects at the budget cost estimate and feasibility cost estimate stages. This is discussed further below.
>
> Napier & Blakeley (appendix 3b.2) have reviewed JAM's cost estimating model for routine capex projects against the industry standards outlined in the Australian Cost Management Manual produced by the Australian Institute of Quantity Surveyors. They found the estimating procedures followed by JAM are consistent with industry-accepted standards.
>
> Parsons Brinckerhoff (appendix 3b.1) have reviewed the planning, estimating and approvals process for non-routine capex and concluded that this process results in forecast estimates for the projects reviewed [that] represent efficient values and are compliant with rule 74…"

The text continues with a discussion of these processes and of the conclusions stated by Napier & Blakeley and Parsons Brinckerhoff under the headings "capital plan", "gating process for system reinforcement, renewal, replacement", "other approval processes", "current project gating status" and "detailed design and estimate refinement" before proceeding to other matters (revised escalators, etc).

New Information

We have already noted in section 1.2 of this report that we were not able to attest to the efficiency of JGN's proposed capital expenditure in the next period in our Final Report because of the lack of information on the details, volumes and costs of the planned work. Several reasons were given and are summarised in section 1.2, to which the reader is referred.

Accordingly, we were particularly interested in receiving additional information to address the shortfalls identified in our Final Report as needed for a full assessment of the proposed expenditure to be made. These shortfalls included the lack of provision of business cases, cost estimates, information on the extent of competitive tendering of work to unrelated parties and evidence of the reasonableness of application of the margin applied by related parties and of the rate of capitalisation of overheads in relation to capital works.

Business Cases and Cost Estimates

Business Cases

JGN has now provided a list of business cases in existence in relation to capital expenditure work in the next period together with ten of the cases it listed and their associated cost estimates, and other business cases relating to mine subsidence work.

We reviewed a representative sample of the business cases received. We were satisfied that they generally incorporated descriptions of the proposed work, its need, explanations of how

it fits in with long-term network development plans, the options considered, the identification of the least-cost option (considering all costs, not only initial costs), the reasons for selecting the preferred option, the optimality of timing or staging, consideration of trade-offs if any between capital and operating expenditure, risk analyses, discounted cash flow analyses and any necessary appendices such as network analyses as appropriate in each case.

Cost Estimates

We noted that the cost estimates give details of the cost of the major components in each project and the on-costs and contingencies applied in each case, noting that the estimates received are subject to a wide tolerance, as is expected at the early stage of project formulation and approval.

Unit Rates

We considered that the unit rates for the work, as far as they could be deduced from the information supplied, were within an acceptable range. However, the accuracy of calculation, combined with the width of the range of reasonable cost (given the many and varied circumstances in which pipelines are laid and within which other works are carried out) was such that this conclusion cannot be extended to acceptance of the reasonableness of application of the margins or overhead allowances that have been incorporated in the estimates.

Queries in Relation to Particular Projects

With respect to the project cost estimates for Horsley, Yass and Emu Plains and using information from the business cases, we consider that the costs shown for pipeline construction and PRS and POTS equipment are within the range we would expect for these categories of work, noting that they are expressed with a tolerance of ± 30%.

However, detailed design costs for the Emu Plains PRS and Yass POTS appeared high, amounting to about **[c-i-c]**% of direct costs. In response to a query, JGN confirmed on 10 May that detailed engineering design services for large projects are tendered competitively.

We were concerned regarding project and programme management costs. These appeared to be **[c-i-c]**% of direct costs in the case of Horsley, **[c-i-c]**% for Yass and **[c-i-c]**% for Emu Plains PRS. In response to a query, JGN clarified the costs and provided additional information on 10 May that satisfied us.

In addition, we were unable initially to reconcile the cost estimates for Emu Plains with its business case but JGN provided a clarification on 10 May.

We checked Parsons Brinckerhoff's report to see if these matters had been considered by it but only the Emu Plains PRS and mains extension project was common. According to Parsons Brinckerhoff, the Emu plains project is divided into two part-projects, the PRS and the mains extension work. In relation to the PRS, Parsons Brinckerhoff notes on pp. 14-16 of its report in relation to design and management costs:

> "Subcontracts for the PRS are forecast at $**[c-i-c]**. Within this total, JAM's project manager stated that the $**[c-i-c]** cost of design of the PRS is based on the lowest of three quotations. The design estimate is based on a quotation for completion of the work, with no apparent allowance for variations to that quote."

and:

> "The indirect costs were estimated to be $**[c-i-c]** including site mobilisation, project engineering and site supervision estimates based on CTRs from JAM's engineering group assuming a construction period of 3 months. In addition, these items included environmental cost from the Licence 8 launcher / receiver facilities. These came to a total cost of $**[c-i-c].** Indirect costs also included $**[c-i-c]** for land acquisition costs. This value is based on current ongoing negotiations with other private landholders.

> In regard to the mains extension, quotations for completion of the detailed design of the mains component were received from 3 companies, and ranged in price from $**[c-i-c]** to $**[c-i-c]**."

and:

> "The project management and approvals cost is estimated at $**[c-i-c]**, or **[c-i-c]**% of the forecast cost of the mains extension. It is anticipated that a large number of third party approvals will be required including from **[c-i-c]** . An itemised listing of approvals with estimated costs was provided. A quotation for environmental works was used as the basis of estimate for that component of work. These come to a total of $**[c-i-c]**."

Whilst the cost of the EMU plains project design and management work appears high, it also appears to be based on or referenced to external quotations.

On balance, we decided to accept the costs as reasonable.

Extent of Outsourcing of Work

JGN has provided information on the extent to which it tenders out its capital expenditure work competitively. This information was provided to us in December 2009, too late for consideration in our Final Report, but we note that changes have been made in the data received at that time. Figures 3-3 and 3-4 on p. 61 of the *Initial Response* indicate the percentages of routine capex and non-routine capex tendered competitively. The figures are 69% and 53% respectively (**[c-i-c]**% and **[c-i-c]**% respectively in JGN's response of 11 December 2009 to the AER's questions). [17]

Notwithstanding the change in the percentages cited, the percentages outsourced are material and the corresponding proportions of the forecast expenditure may be considered to reflect market-tested rates.

The efficiency of work undertaken internally or contracted to related parties or not contracted competitively cannot be assessed from the data provided.

Parsons Brinckerhoff Report

In relation to Parsons Brinckerhoff's original report,[18] which JGN submitted with its original AAI, we noted in our Final Report,

> ".... PB's terms of reference were limited in that it was asked to "review two JAM documents: the historic (sic) expenditure report which sets out capital projects and expenditure JAM has undertaken or will undertake for JGN during 2005/06 to 2009/10; and the JGN asset management plan for 2010/11 to 2014/15 which sets out JAM's proposed capital expenditure plans and asset management practices relating to the management, review and approvals of capital expenditure; and provide an opinion as to whether these documents provide a reasonable basis for JGN to determine its conforming capital expenditure (as provided for in rule 79(1)) made and to be made, respectively, under the National Gas Rules"

We concluded in our Final Report,

> "In short, we consider that the arguments advanced by PB tend only to demonstrate prudence in the manner in which the works were identified, planned and executed but do not demonstrate efficiency, which in our opinion would require either a "bottom-up" appraisal of the costs incurred or identification of wholly competitive processes in tendering the work. In addition, a justification and reconciliation of any capitalised overheads or profit margins that have been added to the expenditure would need to be provided."

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[17] The percentage varies from project to project: see JGN's response of 3 May to the AER's questions of 28 April.

[18] *"Review of Jemena Gas Networks capital expenditure, 2010/11 - 2014/15 access arrangement period"*, August 2009.

JGN has now submitted a supplementary report by Parsons Brinckerhoff [19] in which Parsons Brinckerhoff was asked to: (a) undertake further review of a representative sample of projects planned in the next period to assess whether information now available demonstrates the efficiency of forecasts, and whether those forecasts comply with rules 74 and 79 of the National Gas Rules; (b) form an opinion as to whether expenditure in specific categories creates or extends the life of existing assets; and (c) comment on the use of benchmarking in industry. [20] Parsons Brinckerhoff was to form its opinion using the evidence and materials that JGN provided to the AER in its original submission or intended to submit to the AER in relation to forecast capital works. [21]

In relation to the first part of its brief, Parsons Brinckerhoff reviewed a sample of projects that included the Wakehurst Parkway secondary mains renewal project, the Marsden-to-Dubbo POTS upgrade project, the Emu Plains PRS and mains extension project and meter replacement programmes. It is not clear from Parsons Brinckerhoff's report if these projects were selected by it or by JGN but Parsons Brinckerhoff notes on p. vi of its report that, "Overall, Parsons Brinckerhoff considers that the quantity and quality of information which has been provided by JAM has enabled [it] to form an opinion on the efficiency of forecast estimates."

It summary, Parsons Brinckerhoff considers that the cost estimates were efficient by virtue of being based on past tendered work (i.e. they were based on "market tested" data) and by virtue of other processes that help ensure efficiency (i.e. comparison with new technology options).

Parsons Brinckerhoff states on p. vi of its report, "Parsons Brinckerhoff considers that evidence provided for the projects and programs reviewed demonstrate[s] that forecast estimates represent efficient values and are compliant with rule 74".

Parsons Brinckerhoff does not set out the project cost estimates that it examined in its report and it is silent on the application of overheads or margins, so it is not fully clear what estimates it cites. However, we considered it reasonable to assume that it reviewed estimates that form part of the schedule of expenditure that JGN has incorporated in its revised AAI.

Napier & Blakeley Report

JGN has submitted an opinion by Napier & Blakeley on routine capital expenditure in the next period. [22] Napier & Blakeley were asked to "provide an opinion on whether the cost estimating process used by JAM for estimating routine capital expenditure, the cost estimates for routine capital expenditure projects and the cost drivers taken into account in deriving costs using JAM's cost estimating model are consistent with what it could be expected [sic] a prudent service provider acting efficiently, in accordance with accepted good industry practice, would use". [23]

The report expresses the view that JGN's routine capital expenditure rates are based on or tested against market-tendered work and that the rates applied are average for the industry.

The report discusses the 6% overhead and **[c-i-c]**% profit margins, noting on p. 14, "It is standard industry practice to make allowance for both overheads and profit margins." and "These are generally derived in the form of a percentage applied to the direct costs." The report further states on p. 14, "From information derived from the Napier & Blakeley

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19 Appendix 3b.1 to the *Initial Response*.

20 As stated by Parsons Brinckerhoff.

21 The information referred to is not listed and so we are unable to confirm that it was received by the AER.

22 Appendix 3b.3 to the *Initial Response*.

23 Source: terms of reference appended to Napier & Blakeley's report.

historical cost data library, the JGN overhead costs and profit margins are applied in the typical industry format and sit within the acceptable average range of margins that are evident within the construction and engineering industries." However, the report does not otherwise appear to examine or comment on the application of these overheads and margins.

The report appears to present a clear opinion that JGN's routine capital expenditure estimates reflect efficient levels inclusive of overhead and profit margins, although, as we have just noted, the application of those margins is not dealt with specifically.

Margin and Capitalised Overheads

Our terms of reference did not require us to examine the application of margins or overhead allocations further and we have not done so, other than to indicate in the text whether our endorsement of particular estimates or particular unit rates or suchlike as reasonable implies that any margins or overhead allowances incorporated in the estimates or unit rates are reasonable as well.

Conclusion in Relation to General Level of Efficiency

We concluded in our Final Report in relation to JGN's forecast capital expenditure in the next period that its prospective efficiency was not adequately demonstrated by JGN. Thus, we were able to conclude (sometimes by giving JGN the benefit of reasonable doubt) only that the work foreseen was reasonable in scope or appeared so, subject to various adjustments that we proposed.

We noted at the commencement of this section 4.2 that the additional information sought in relation to capital expenditure for the purpose of this review included business cases, cost estimates, information on the extent of competitive tendering of work to unrelated parties and evidence of the reasonableness of application of the margin applied by related parties and of the rate of capitalisation of overheads in relation to capital works.

The new information received — specifically, the business cases, their related cost estimates, the reports by Parsons Brinckerhoff and Napier & Blakeley and the new information on the extent of competitive tendering of work to unrelated parties — have enabled us to accept not only that the capital work foreseen in the next period is reasonable in scope but also that JGN's revised level of capital expenditure in the next period is, in general, efficient, subject to modified adjustments that we propose and that we discuss in sections 4.3 and 4.4 of this report.

In reaching this conclusion, we considered that the business cases received were typical of those prepared in the industry and we considered that they met our requirements for reviews of this type — subject to the reservation just stated in respect of the application of margins and capitalised overhead costs, both of which were outside the scope of our further review. On the other hand, we also considered that the various points not answered to our satisfaction introduced an element of doubt. On balance, however, we considered that the doubt was outweighed by the other information received.

In concluding that the market expansion component of the capital expenditure is efficient, we draw no conclusions in relation to the reasonableness of the forecast demand or forecast number of new connections.

Our conclusion in relation to the general level of efficiency is qualified by continued doubts in respect of the appropriateness of the **[c-i-c]**% margin added to the cost estimates and in

respect of the capitalised overheads, in relation to both of which we set out various points of principle in our Final Report and were not required to examine them further in this review. [24]

4.3 Additions to Regulatory Asset Base

Adjustments were recommended in our Final Report in relation to certain expenditure items that we considered ought not to be added to the regulatory asset base but expensed. Accordingly, we recommended that the items concerned be removed from the capital expenditure forecast and not added to the regulatory asset base, although we added that there ought to be a mechanism for the business to recover its efficient costs in relation to them.

JGN appeared to take these recommendations as an attack on its financial statements. However, it should be clear from our text on p. 43 of the Final Report that we were not criticising JGN's financial statements or the principles on which they were prepared and audited but were making recommendations on what should be included in the regulatory asset base. That is a different matter entirely. The following inferences drawn from our statements and written in the *Initial Response* at p. 87 are thus completely unwarranted:

> "Inherent in Wilson Cook's conclusion and the AER's draft decision as regards historic capex is a conclusion that JGN's audited statutory accounts have been incorrectly prepared and that neither JGN nor its auditors should have signed them off. JGN takes this issue very seriously and considers that this conclusion is without basis, particularly given this was a matter outside of Wilson Cook's scope of work."

Our text on p. 43 of the Final Report in connection with mines subsidence is relevant to this point. It read:

> "The work appears necessary but the question arises: why should the expenditure be capitalised if, as we presume, no new assets were created or the lives of existing assets, when repaired, were not thereby extended? We therefore consider that this expenditure should not be added to the regulatory asset base, although there ought to be a mechanism for the business to recover its efficient costs."

Our view of expenditure on the other items for which we recommended adjustments on this account was consistent with this statement.

JGN's Position

JGN stated on p. 84 of its *Initial Response* in relation to our view on this matter:

> "Wilson Cook concludes, and the AER accepted this conclusion, that certain of JGN's historic [sic] and forecast capex does not create a new asset or extend the life of an existing asset (e.g., mines subsidence) and should not be allowed as capex.
>
> JGN questions how these conclusions can be reached without:
>
> - reviewing JGN's capitalisation policy
> - inspecting the physical asset or detailed project plans to see if the expenditure did extend the life
> - taking into account JGN's safety obligations that have motivated capex such as mines subsidence
> - the necessary expertise to opine on a matter of accounting practice.

[24] We note for the AER's attention that the business case cost estimates provided by JGN on 27 April appear to show that the margin applied is based on **[c-i-c]**% of total project costs. For example, in the case of the Loftus project, the total is $**[c-i-c]** of which the margin is $**[c-i-c]**. This appears to be general to all the project cost estimates received. (Note: In the case of the Loftus project, the majority of the direct costs are **[c-i-c]** costs ($**[c-i-c]**), so the **[c-i-c]**% margin is being applied on top of **[c-i-c]** costs, JAM project and program management costs, and JAM overhead. In the case of the Emu Plains project, the costs appear to be **[c-i-c]** (but must be a mix of **[c-i-c]** as none of the Jemena companies manufacture electrical equipment) and the **[c-i-c]**% margin is applied in the same way.

> JGN considers that the NGR are not prescriptive about the delineation between capex and opex. JGN has applied an accounting capitalisation policy which it has had independently reviewed by Ernst & Young for compliance with the relevant accounting standards."

The text in the *Initial Response* then proceeds on pp. 87-9 to examine each case — subsidence at the Appin mine, integrity digs, pigging and ad hoc mains, and service renewals.

Reference is made to an opinion from Ernst & Young dated 17 March 2010 (appendix 3b.4 of the *Initial Response*). In addition, a later expert opinion from Ernst & Young dated 19 April 2010 was provided to the AER.

No reference in relation to this matter is made in JGN's *Initial Response* to the supplementary report by Parsons Brinckerhoff. [25] However, Parsons Brinckerhoff discusses the matter in section 5 of its report and so we address the comments it makes.

Ernst & Young's Reviews

Scope

Ernst & Young was asked by JGN to review JGN's capitalisation policy for compliance with the interpretation and application of Australian Accounting Standards, which include Australian equivalents to the International Financial Reporting Standards (AIFRS). [26] JGN also asked Ernst & Young to comment on the four specific instances in which we and the AER contested JGN's cost capitalisation: subsidence at the Appin mine, integrity digs, pigging and ad hoc mains and service renewals.

The letter of transmittal in Ernst & Young's report of 17 March 2010 describes the scope of that report in the following terms:

> "Specifically, we have agreed to comment on the following four instances of costs that were incurred on the network during the regulatory period 2005 – 2010 or planned to be incurred in the forthcoming regulatory period: (1) Appin Mine Subsidence; (2) Integrity Digs; (3) Pigging; [and] (4) Ad Hoc Mains and Service Renewals.
>
> You have asked us to state whether (on the basis of information provided to us by you) the treatment of these costs in the **statutory** accounts is (i) consistent with JGN's accounting policy for gas pipelines and (ii) that the accounting treatment adopted by JGN is consistent with the principles of the relevant Australian Accounting Standards. Specifically, you have asked us to consider whether such costs qualify for capitalisation under AASB116.
>
> Other than as set out above, you have not asked us to consider any other aspects associated with these costs or related topics, which may include but not be limited to the subsequent treatment of such costs and any legal or tax implications. Our work and advice is focused solely on the application of the accounting standard requirements to the facts and information presented to us by you."

The scope of Ernst & Young's opinion of 15 April 2010 is stated in its letter of transmittal (dated 19 April 2010) as follows:

> "This report complements Appendix 3.b4 by providing an expert assessment [of] JGN's capitalisation policy against the relevant accounting standards. This report has been prepared in accordance with the Federal Court guidelines for expert witnesses.
>
> This report does not alter the actual or forecast expenditure reported in JGN's revised access arrangement revision proposal. Instead, the report provides further detailed expert evidence on why expenditure that JGN has capitalised under its capitalisation policy is appropriately characterised as being capital expenditure, that is, that they are

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[25] Appendix 3b.1 to the *Initial Response*.

[26] Source: appendix 3b.4: Ernst & Young capitalisation opinion.

> costs and expenditure of a capital nature incurred to provide, or in providing pipeline services."

and in the body of the text:

> "The assignment
>
> 8. I have been instructed to provide an opinion as to what accounting standards, and authoritative guidance, are relevant in determining whether expenditure is capital in nature and whether Jemena's accounting policy for the capitalisation of costs is in accordance with the relevant accounting standards and authoritative guidance. The terms of reference are attached at Appendix D."

and in appendix D to the report:

> "Scope of Work
>
> The independent expert will provide an opinion report that is suitable for reliance by the AER detailing: (1) what accounting standards are relevant to determining whether expenditure is capital in nature; and (2) whether JGN's capitalisation policy complies with the relevant accounting standards identified in item 1."

Our Observations in Relation to Scope

In relation to this statement of scope, we note: (a) that we are not concerned with (and made no comment on) JGN's statutory accounts or any other of its accounts other than the regulatory accounts prepared in accordance with the requirements of the AER; and (b) that we have not disputed the application of AASB116 or of any other accounting standard to the expenditure, but questioned the appropriateness of the amounts being added to the regulatory asset base.

Ernst & Young's Findings

Ernst & Young's understanding of the nature of the expenditure in each case is set out in its first opinion. In all instances, Ernst & Young concluded, based on its understanding of the nature of the expenditure, that JGN's treatment of the items was consistent with JGN's capitalisation policies, which, in turn, reflected the requirements of the relevant Australian accounting standards, AIFRS.

Ernst & Young's second opinion provided additional evidence on why expenditure that JGN has capitalised under its capitalisation policy is appropriately characterised as being capital expenditure, that is, that it was costs and expenditure of a capital nature incurred to provide, or in providing, pipeline services within the meaning of AIFRS.

Our View

We have no reason other than to be satisfied from Ernst & Young's reports that JGN's capitalisation policies conform to AIFRS requirements, based on Ernst & Young's stated understanding of the nature of the expenditure, and we have never expressed a view that they did not.

Our task was to give an opinion on items that were proposed to be added to the regulatory asset base.

We note in that context that the accounting standards referred to were not necessarily set with the objectives of a regulatory framework in mind and may not reflect regulatory objectives.

Nowhere have we found any requirement placed on users of financial information to use only financial statements prepared in accordance with internationally accepted financial reporting standards.

Parsons Brinckerhoff's Report

Scope of Review

Parsons Brinckerhoff describes the scope of its review on this matter on p. 25 of its report, stating,

> "JGN requested that PB provide an opinion on whether this expenditure led to the creation of assets, or the extension of the life of existing assets. Whilst these items relate to WC&C's criteria for capitalisation PB was not asked to comment directly on the capitalisation policies".

Interpretation of Parsons Brinckerhoff's Report

Caution appears necessary when reading section 5 of Parsons Brinckerhoff's report, as some statements in it in relation to our work are incorrect or the inferences that are drawn from them or that might be drawn from them are incorrect. For example:

Parsons Brinckerhoff states on p. 25,

> "WC&C observed that pigging facilities and integrity digs are required in order to optimise trunk main asset life and minimise the lifecycle costs by allowing integrity reviews to be completed."

We made no such statement in our Final Report.

On p. 26, Parsons Brinckerhoff cites the following text from our report,

> "WC&C acknowledge that work related to mine subsidence is necessary, however states that it should not be capitalised because 'no new assets were created or the lives of existing assets, when repaired, were not thereby extended".

However, the full text in our Final Report (p. 54) reads,

> "Expenditure on mines subsidence is forecast to be $5.5 m over the next period, a considerable reduction on the level in the present period. This is before the deduction of recoveries, if any, from other parties in respect of the damage. The work appears necessary but the question arises: why should the expenditure be capitalised if, as we presume, no new assets were created or the lives of existing assets, when repaired, were not thereby extended? We therefore consider that this expenditure should not be added to the regulatory asset base.

A presumption on our part has been cited by Parsons Brinckerhoff as if we had made a statement of fact. That is incorrect.

A quotation of our work at the bottom of p. 27 of Parsons Brinckerhoff's report reads,

> "Where longer lengths of main are renewed, design work is required, and these renewed sections are retained when the mains in the surrounding area are replaced. On this basis, WC&C's assumption that 'the area of the network concerned is then rehabilitated as a whole (as would appear likely, given their nature), the repaired pipes may be abandoned along with the rest of the network' is incorrect."

However, the full text in our Final Report (p. 63) reads,

> "The capitalisation of repairs – by and large, all repairs to leaks entail the replacement of some pipework – raises several issues.
>
> - The rationale for charging replacements up to 12 metres to revenue and replacements of 12.1 metres or more to capital is unclear. Surely, only one treatment is correct, and whichever it is it should apply regardless of length.
> - If the value of old pipes has not been restated to reflect their depreciated replacement cost, then capitalising the replacements will increase the regulatory asset base and allowed profit.
> - If the repairs are capitalised but the area of the network concerned is then rehabilitated as a whole (as would appear likely, given their nature), the

> repaired pipes may be abandoned along with the rest of the network. If so, the capitalised value of the repairs would then need to be written off.
>
> In general, our view is that such expenditure should be expensed but the AER may wish to ask for (or make) calculations to assess the impact of the alternatives on customer prices."

The reduced form in which this text was quoted leaves it open to misinterpretation as no reference is made to the other considerations evident in the full text.

Methodology

Parsons Brinckerhoff states on p. 25 in relation to its methodology,

> "In forming a view as to whether expenditure in each of these areas contributes to the creation or life-extension of assets, PB considered how expenditure in each of these categories is planned within JAM's AMP."

It is not explained why the way in which expenditure is **planned** determines whether an asset is created or whether the life of an existing asset is extended although we discuss later whether it may do so in respect of ad hoc work on mains and services renewal.

Pigging and "Integrity Digs"

In relation to pigging and "integrity digs", the following statement by Parsons Brinckerhoff (p. 25) appears to follow from the statement of methodology:

> "PB's opinion is that the construction of pigging facilities results in the creation of a new asset, and the use of in-line inspections via pigging is a planned element within the asset lifecycle."

We did not dispute that pigging *per se* is appropriate or that the expenditure incurred in the creation of the necessary facilities to carry it out constitute the creation of a new asset. Our concern is with expenditure that is characterised by JGN as relating to the operation of such facilities. That should have been clear from the following statement on p. 58 of our Final Report:

> "Several projects listed in appendix 7.6 were described as "integrity digs on pipelines, **generally following condition analysis from pigging**". The expenditure forecast is $13.7 m over the next period. It is presented as capital expenditure but does not appear to relate to the addition of a new asset or to remedial work that would extend the life of an existing asset and we therefore consider that it ought not to be added to the regulatory asset base but expensed. [27] [28]"

The first part of Parsons Brinckerhoff's opinion just cited therefore appears to be unrelated to the matter under discussion; and the relevance of the second part of its opinion — that "the use of in-line inspections via pigging is a planned element within the asset lifecycle" appears to have no bearing on whether expenditure "generally following condition analysis from pigging" should be added to the regulatory asset base.

Parsons Brinckerhoff's next paragraph (p. 25) reads,

> "A percentage of expenditure on integrity digs also directly contributes to the extension of the asset life; however PB is unable to quantify this."

Without quantification, we are unable to recognise the expenditure. Also, on p. 26, the acknowledgements in Parsons Brinckerhoff's text that 'integrity digs' are carried out "*based on the outcome of in-line inspections"* (the opening sentence in section 5.1.3) and that "*the completion of integrity digs does not result in the creation of any new assets"* (in the

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[27] At least one other gas distribution business classified this type of work as opex.

[28] The AER identified five additional instances when commenting on our draft report that should possibly be treated similarly but we did not have time to investigate them.

following paragraph) suggest that the expenditure in question ought not to be recognised as capital in nature anyway.

The third paragraph in Parsons Brinckerhoff's section 5.1.3 acknowledges that it is not the inspections *per se* that extend the lives of the pipelines but the repairs that flow from them. It reads,

> "JAM stated that **a component of the expenditure on integrity management does in fact result in the repair of areas of trunk mains** identified though completion of pigging and subsequent integrity digs. These repairs allow the asset life to be extended through patching areas as required and therefore postponing or avoiding the later need for renewal."

Without details of the nature and costs relating to repairs, we are not able to change our opinion. Neither we, nor apparently Parsons Brinckerhoff, received such information.

Mines Subsidence

In relation to mines subsidence, Parsons Brinckerhoff states (p. 26),

> "While an allowance for expenditure on mine subsidence can be made at project conception, it is difficult to quantify. It is PB's opinion that expenditure on mine subsidence ensures that a damaged asset remains fit for purpose where failing to undertake the expenditure would both shorten the asset life and create significant safety risks. Therefore, this expenditure is necessary to continue to operate the pipeline safely. The expenditure does not necessarily result in an extension of the design life beyond that originally intended."

Ignoring the question of a contingency sum for damage, the principal point being made appears to be that repairs are necessary. However, the question not addressed is how they should be treated when they are made.

Parsons Brinckerhoff's last sentence appears to support our contention that a repair may not lead to a life extension.

Parsons Brinckerhoff goes on to state (p. 27),

> *"In PB's experience, allowances for subsidence in the design and construction of assets result in higher than normal capital expenditure being required to ensure the assets are fit for purpose.*
>
> *While these standards exist and are applied in the design and construction of these assets, it is PB's experience that some damage to the infrastructure often occurs irrespective of the standards applied. This expenditure is therefore required to ensure the actual service life of the asset meets the design service life. An allowance for this expenditure should be included at the project identification, concept estimate and delivery stages since it will impact the viability of the project for a prudent network operator.*
>
> *Where appropriate standards have not been applied in the design or construction of the assets, subsidence would be expected to resulted [sic] in damage to the assets. In these instances, the initial cost of construction (therefore asset value) would be lower than if the design had allowed for subsidence. In these instances, the allowance for expenditure at project delivery may be less than the remedial work required.*
>
> *Subsequent repair work for damage caused by subsidence could therefore be considered additional capital expenditure required to bring the asset to the required design standard, thereby adding to the capital expenditure.*

These paragraphs appear to suggest that an uplift in value could be recognised if repairs raise the standard of installation of the asset. However, as it is only a portion of the asset that has been repaired in the case under discussion, the standard of installation of the pipeline as a whole cannot have been raised.

Ad Hoc Mains and Services Renewal

In relation to ad hoc mains renewal, Parsons Brinckerhoff states (p. 27),

> "PB is of the opinion that ad hoc mains renewal results in an extension of the asset life and lower planned capital expenditure in those areas of the network where lengths greater than 12m are renewed."

On pp. 27-8, Parsons Brinckerhoff states,

> *"…JAM stated that the standard length of pipe is 12m, and the like-for-like replacement of a single length does not require any design work to be completed, and can therefore be carried out as part of operational repairs. This work is expensed and these lengths of pipe are indeed abandoned along with the rest of the network when it is renewed as part of the network renewal capital expenditure.*
>
> *Where longer lengths of main are renewed, design work is required, and these renewed sections are retained when the mains in the surrounding area are replaced. On this basis, WC&C's assumption that 'the area of the network concerned is then rehabilitated as a whole (as would appear likely, given their nature), the repaired pipes may be abandoned along with the rest of the network' is incorrect.*
>
> *JAM stated that where sections of main have been replaced, this information is recorded and when the mains in the area are renewed, any sections replaced as part of the ad hoc mains renewal work is tested but not replaced. Evidence was provided within the business case for the scope of work for Smithfield Liverpool Rehabilitation Project which documents that 12,600m of a total main length of 34,867m had been tested, but not replaced.*
>
> *Where ad hoc replacement results in lengths greater than 12m of main, these renewals do in fact extend the service life of the sections replaced and reduce future capital expenditure when those areas of the network are renewed by extending the service life of the sections replaced in an ad hoc manner."*

We take this to mean that design work is required for individual items of ad hoc mains renewal work of over 12 m in length and that this distinguishes such work from repairs and maintenance; and that JGN can identify sections of pipeline where such new work has been kept when later refurbishment work of a more general nature has been undertaken in the area concerned.

It is not stated but implied that the 12.6 km of mains tested and not replaced under the Smithfield Liverpool rehabilitation project were installed under the ad hoc mains replacement programme being discussed and not under a specific project outside that expenditure category. However, no evidence of this was provided by JGN, nor was the business case in question.

Other Relevant Considerations

Determination of what ought to be added to the regulatory asset base would seem to us to be a matter within the authority of the AER.

It is normal for government agencies to set particular requirements relating to financial calculations for their specific purposes. For example, the Commissioner of Inland Revenue in New Zealand mandates certain maximum depreciation rates in order to avoid the erosion of the country's tax base through the excessive offsetting of depreciation against taxable profits.

Likewise, the Commerce Commission in New Zealand mandates certain requirements in relation to the refurbishment of the network fixed assets of electricity lines businesses and gas pipeline businesses in order to discourage inflation of regulatory asset bases through the capitalisation of repairs that would more properly be expensed. The matter is reflected in the

requirements in the Commission's valuation handbook that need to be met before extending the life of an asset through refurbishment: [29]

> "Refurbishment
>
> A.36 Refurbishment is classed as work done on the asset (or set of assets) that results in a material extension of its service life beyond its normal TL [Total Life]. This is distinct from maintenance work, which is done to ensure that an asset is able to perform its designated function for its normal TL.
>
> A.37 When an asset has been refurbished, the ELB [Electricity Lines Business] should assign an RL [Remaining Life], effective from the time of refurbishment, but this RL shall not be greater than the standard TL as specified in Table A.1 (for distribution ELBs) and Tables A.2-A8 (for Transpower). The ODRC value of the asset after refurbishment shall be the new optimised replacement cost of an MEA [Modern Equivalent Asset] with an equivalent service potential, depreciated to reflect the assigned remaining life. Where an asset is assigned a new RL in accordance with the provisions of this clause, the ELB shall prepare an engineering report detailing the refurbishment work undertaken and the basis for determining the new remaining life. This engineering report shall be retained by the ELB."

This requirement appears to us to be analogous in some respects to the cases in which we recommended adjustments, as we will discuss.

Without such a consideration as that set out in the Commerce Commission's handbook, the capitalisation of repairs would, if carried to its illogical extreme, lead to all expenditure on repairs being added to the regulatory asset base and to the regulatory asset base being inflated as a result.

From a network fixed asset valuation standpoint — a matter on which the principal author of this opinion has considerable experience — the incorporation of the cost of repairs without creating a new asset or extending the life of an existing asset would inflate the value of the network fixed assets improperly.

It is a matter of fact whether the repair of a portion of an asset extends the life of the asset as a whole.

Reassessment of Specific Adjustments

We have reassessed each of the adjustments related to this matter and recommended in our Final Report in light of the opinions and considerations set out above and in light of the new information provided by JGN. In doing so, we clarify our understanding of the nature of the expenditure aspect that appears to be central to the matter in each case.

Repair of Pipeline Damage Arising from Appin Mine Subsidence

In our Final Report, we said: [30]

> "Expenditure on mines subsidence is forecast to be $5.5 m over the next period, a considerable reduction on the level in the present period. This is before the deduction of recoveries, if any, from other parties in respect of the damage. The work appears necessary but the question arises: why should the expenditure be capitalised if, as we presume, no new assets were created or the lives of existing assets, when repaired, were not thereby extended? We therefore consider that this expenditure should not be added to the regulatory asset base."

JGN argues on p. 88 of its *Initial Response*,

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[29] Handbook for optimised deprival valuation of system fixed assets of electricity lines businesses, Commerce Commission, 30 August 2004.

[30] All passages cited from our Final Report in this section are from section 6.2 of that report.

> "JGN notes that it was never asked to clarify if any new assets were created or if the asset lives were extended. If it had been, JGN could have clarified that both these things were in fact the case. Appendix 3b.4 details why this is so for each type of pipeline works." [31]

Ernst & Young (appendix 3b.4) states its conclusion in relation to the Appin mine work on p. 11 of its report, saying,

> "While not being able to determine and therefore assess the individual components of the costs incurred, and therefore not knowing the value or nature of any other costs that may have been incurred, and on the assertion that the nature of the costs considered and assessed above is representative of the majority of the costs incurred, within this context, it would be our view that it would be appropriate for these costs to be capitalised under AASB116. This would primarily be on the basis that they were considered to give rise to future economic benefits, either through increasing the future revenue earning capacity of the pipeline (e.g. increasing the useful life of the pipeline) or by reducing future operating costs.
>
> To the extent that some costs within this total were considered not to enhance the future economic benefits of the asset and hence were more akin to repairs and maintenance, or making good the previous site of the pipeline, they would need to have been expensed as incurred. We have not been able to perform any detailed analysis of the costs incurred to determine whether any such costs existed."

This conclusion does not appear to us to be an unqualified endorsement of capitalisation in the instances under consideration. Further, we interpret a decision to capitalise to be reliant on future economic benefits being created.

We have not questioned the necessity for the work, only its proposed addition to the regulatory asset base.

Our understanding is that the repaired section of the pipeline constitutes only a portion of the total pipeline.

Repair or improvement of a portion of a pipeline does not necessarily result in an extended life for the pipeline as a whole — and the normal presumption in the absence of evidence to the contrary is that it does not.

No evidence has been provided to demonstrate that the remaining life or capacity of the pipeline as a whole is extended by the repair of damage to a portion of it.

If the repair of a portion of the pipeline was accompanied by work that did extend the life or capacity of the pipeline as a whole, then that element of the cost ought to be separated from the cost of the repairs to the damaged portion alone and treated separately.

The mere restoration of a pipeline to full and safe service through the repair of a damaged portion of it does not appear to us to meet these requirements and therefore we reject the argument made by JAM in its response of 19 April to the AER's questions of 12 April in which, on p. 3, JGN states,

> "In relation to Appin Mines subsidence expenditure JGN notes that if the expenditure on this project had not been undertaken then the future economic benefits from the asset would have been severely impeded and / or curtailed. It was anticipated that prior to the capital expenditure that the subsidence would reduce the life of the asset. Therefore, the expenditure was undertaken for the primary purpose of extending the life of the asset from this anticipated reduced asset life back to its original design life. It is this life extension nature to the expenditure that meets the criteria of AASB116.

[31] The text continues, "Further, JGN notes that the rule 79(2)(c) of the NGR identifies that capex is 'necessary' where it is required [in circumstances that are then stated]". However, determination of compliance with the rules is for the AER to decide, not us.

> Consistent with Rule 79, the expenditure on the mine subsidence project was necessary to maintain and improve the safety of services and to maintain the integrity of services.
>
> It is on this same basis that JGN capitalises those aspects of the ad hoc mains and services renewal that meet the criteria of AASB116."

We therefore retain the view expressed in our Final Report.

"Integrity Digs" and "Integrity Management"

"Integrity Digs"

In our Final Report, we said:

> "Several projects listed in appendix 7.6 were described as "integrity digs on pipelines, generally following condition analysis from pigging". The expenditure forecast is $13.7 m over the next period. It is presented as capital expenditure but does not appear to relate to the addition of a new asset or to remedial work that would extend the life of an existing asset and we therefore consider that it ought not to be added to the regulatory asset base but expensed. [32] [33]
>
> The item "Integrity Management of Sydney Loop – Horsley Park – Tempe" appeared to be similar in nature. The forecast expenditure on that item is $3.9 m over the next period. The documents did not describe the nature of the work being planned.
>
> We recommend that these items be removed from the capital expenditure forecast and not added to the regulatory asset base, although there ought to be a mechanism for the business to recover its efficient costs. [34] "

We again note JGN's statement on p. 88 of its *Initial Response* cited above ("JGN notes that it was never asked to clarify if any new assets were created or if the asset lives were extended…").

Ernst & Young (appendix 3b.4) states its conclusion in relation to the integrity digs on p. 11 of its report, saying,

> "Based upon our understanding of these activities, it would be our view that they are akin to a major inspection as described in AASB116, and on the basis that this expenditure is required to be incurred by Jemena in order to comply with its licence obligations and therefore to be able to continue to operate the pipeline and hence generate future economic benefits from its activities, it would be appropriate to capitalise such costs. The cost of this work would then be amortised over the period until the next integrity dig.
>
> We understand that any remaining capitalised costs from previous inspections are derecognised and expensed immediately."

We agree that if the expenditure is large, it could be spread over several years — Ernst & Young suggest until the time of the next inspection — and could be treated in essence as a deferred expense and amortised over the appropriate period. However, we still question why such an expense should be added to the regulatory asset base and earn a return and, over time, be charged against revenue as depreciation.

We did not receive any significant new technical material in support of JGN's view.

We therefore retain the view expressed in our Final Report for the AER's further consideration of its treatment.

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[32] At least one other gas distribution business classified this type of work as opex.

[33] The AER identified five additional instances when commenting on our draft report that should possibly be treated similarly but we did not have time to investigate them.

[34] We considered if they ought to be regarded as subsumed in the base-year level of opex or treated as a step change. Noting that they are not caused by an external event and noting that a network-growth-related escalation factor is applied to the bas-year level of operating expenditure to increase the latter as new network assets are added, we recommend the former (that these items be considered subsumed in the base-year level of opex).

"Integrity Management" and Pigging

Ernst & Young (appendix 3b.4) states its conclusion in relation to the pigging on p. 12 of its report, saying,

> "Based upon our understanding of these activities, it would be our view that they are akin to a major inspection as described in AASB116, and on the basis that this expenditure is required to be incurred by Jemena in order to comply with its licence obligations and therefore to be able to continue to operate the pipeline and hence generate future economic benefits from its activities, it would be appropriate to capitalise such costs. The cost of this work would be amortised over the period to the next pigging activity.
>
> We understand that any remaining capitalised costs from previous inspections are derecognised and expensed immediately.

The situation is the same as that described for the "integrity digs", as is our conclusion.

Ad-Hoc Mains and Services Renewal

In our Final Report, we said:

> "In relation to ad-hoc mains and services renewal, Jemena indicated that renewal works of greater than 12 metres in length are capitalised and projects are justified by risk assessments including the cost of repairs, the number of leaks, the alternative solutions available, safety and the level of service. [35] We were advised that expenditure in this category is mainly on older cast iron and steel mains and services that are still to be rehabilitated. In that sense, it appears to be more repair work in nature, rather than renewal, with no significant improvement in the *value* of the asset base.
>
> Jemena was asked to provide additional information and justification for the programme, given the increase in level from the present period. In reply, it stated in its response of 16 November, "The increase in 'ad-hoc mains and services renewal' is directly related to the [historical] 'negative step change' in mains repair volumes. The change in focus comes from JAM belief that the sound technical solution satisfying economic drivers, public perception and safety comes from the replacement of mains on capex rather than repeated calls to a section of main to effect repairs. The reduction in opex counters the increase in capex". The mix of technical and accounting reasons in the explanation is confusing but we take the reply to mean that the business has decided to replace more leaky mains, rather than patching them up. The explanation appeared to confirm our view that the work is in essence more repair work than renewal.
>
> The capitalisation of repairs – by and large, all repairs to leaks entail the replacement of some pipework – raises several issues.
>
> - The rationale for charging replacements up to 12 metres to revenue and replacements of 12.1 metres or more to capital is unclear. Surely, only one treatment is correct, and whichever it is it should apply regardless of length.
> - If the value of old pipes has not been restated to reflect their depreciated replacement cost, then capitalising the replacements will increase the regulatory asset base and allowed profit.
> - If the repairs are capitalised but the area of the network concerned is then rehabilitated as a whole (as would appear likely, given their nature), the repaired pipes may be abandoned along with the rest of the network. If so, the capitalised value of the repairs would then need to be written off.
>
> In general, our view is that such expenditure should be expensed but the AER may wish to ask for (or make) calculations to assess the impact of the alternatives on customer prices."

[35] Presentation to the AER on 16 October 2009.

We again noted JGN's statement on p. 88 of its *Initial Response* cited above ("JGN notes that it was never asked to clarify if any new assets were created or if the asset lives were extended…").

Ernst & Young (appendix 3b.4) states its conclusion in relation to this work on pp. 12 and 13 of its report, saying,

> "3.2.4 Ad hoc mains and service renewals
>
> 3.2.4.1 Rehabilitation of cast iron pipes over 12m in length
>
> Our understanding of the costs incurred previously (and consistent with those expected to be incurred in the next regulatory period) on ad hoc mains and service renewals, is that it involves the replacement of old cast iron pipes (that may have been up to 50 years old) by inserting a new nylon pipe inside the old pipe. This upgrades the pipe and replaces the existing asset with a newer, more advanced asset that is expected to have a longer life. We understand that in some cases, the pressure of the pipeline is also increased, allowing more gas to flow and therefore considered to increase the future potential earning capacity of the asset.
>
> On the basis that such expenditure is considered to result in the extension of the useful life of the asset and increase the future revenue earning capacity of the pipeline, these factors would suggest that such expenditure will give rise to future economic benefits, and hence it would be appropriate to capitalise such costs.
>
> Also, should there be any remaining un-depreciated balance of the old cast iron pipe asset, then it would need to be derecognised from the asset register and expensed immediately, with AASB116 providing guidance of how to do this should it not be practicable to determine the actual carrying value of this replaced part.
>
> We also understand that some questions have been raised regarding the differences in Jemena's accounting policy between the rehabilitation of cast iron pipes 12m or less in length and those over 12m (in that the costs incurred in relation to the rehabilitation of pipes under 12m are not specifically mentioned in Jemena's accounting policy). Based upon discussions with management, we understand that Jemena's accounting policy specifies rehabilitation works over 12m in length as capital works, as the minimum length of nylon pipe which is used in rehabilitation work is 12m. No work is conducted for the rehabilitation of cast iron pipes 12m or less in length.
>
> Conclusion
>
> On the basis that such expenditure is considered to result in the extension of the useful life of the asset and increase the future revenue earning capacity of the pipeline, these factors would suggest that such expenditure will give rise to future economic benefits, and it would be appropriate to capitalise such costs.
>
> 3.2.4.2 Upgrading of pressure of mains
>
> From our discussions with management and Jemena engineering specialists, pressure upgrades of mains involve changing the operating properties of the assets so that the pipelines are able to transport more gas. This is considered to increase the future potential earning capacity of the asset.
>
> Conclusion
>
> Similar to above, on the basis that such expenditure is considered to increase the future revenue earning capacity of the pipeline, this would suggest that such expenditure will give rise to future economic benefits, and hence it would be appropriate to capitalise such costs.
>
> 3.2.4.3 Installation of new capex, e.g. valves
>
> Installation of new items to the distribution network, e.g. new valves, assist in regulating the flow of gas through the network, and allow sections of pipeline to be turned off in the event of a supply issue. In management's view, such expenditure

> gives rise to future economic benefits in that such activities are considered to reduce future operating (repairs and maintenance) costs.
>
> Conclusion
>
> On the basis that such expenditure is considered to reduce future operating (repairs and maintenance) costs, this would suggest that such expenditure will give rise to future economic benefits (via lower costs), and it would be appropriate to capitalise such costs.
>
> 3.2.4.4 Forecast costs
>
> On the basis of the assertions by management that the type and nature of the costs in relation to ad hoc mains and service renewals actually incurred during the regulatory period 2005 – 2010 are representative of the types of costs forecast to be incurred by Jemena during the regulatory period 2011 – 2015, it is reasonable to conclude that such forecast costs would meet the requirements of capitalisation under AASB116.
>
> However, we do note that the AER has assessed that expenditure on ad hoc mains and service renewals should be treated as operating expenditure and expensed as incurred. Therefore, to be able to demonstrate such costs are in fact capital in nature (and could be capitalised), it is critical that evidence be presented by Jemena to support the assertion that the recognition criteria set out in AASB116 had/would be met.

Ernst & Young's conclusions are based on the explanations it received from JGN in relation to this expenditure and weight is placed by them on the need for JGN to provide evidence that the recognition criteria have been met.

The circumstances of this ad hoc work differ widely, as evidenced by the material in JGN's appendix 3b.4E, "Capitalisation of ad hoc mains and renewals".

We did not recommend an adjustment in respect of this item although we noted that, "in general, our view is that such expenditure should be expensed but the AER may wish to ask for (or make) calculations to assess the impact of the alternatives on customer prices."

One of the main reasons for our conclusion was that as hoc work by its nature tends to be "piecemeal" and does not constitute widespread upgrading of the network or of contiguous sections of the network. The possibility therefore exists that a considerable proportion of the ad hoc work may precede more widespread network upgrading and thus be lost eventually. The expensing of ad hoc work therefore allows a proper balance to be struck between "patching up" "old" sections of a network or replacing them with new.

On balance, we retain our general view of this matter as expressed in our Final Report but, as before, do not propose an adjustment to the expenditure in relation to it.

4.4 Other Adjustments

We have reassessed each of the other adjustments recommended in our Final Report in relation to capital expenditure in the next period in light of new information provided by JGN.

Aged Residential Meter Replacement

In our Final Report, we said in relation to aged residential meter replacement:

> "Concerning aged residential meter replacement ($39.4 m), Jemena notes in its AMP that a new statistical sampling standard came into force in 2007 that, together with other circumstances, limits life extensions to 5-year increments. The life extensions are acceptable if satisfactory results are obtained from statistical testing of meter populations.

Jemena states that it has now adopted a policy of allowing only one 5-year life extension to the meter life of 15 years, giving a maximum life of 20 years, compared with its previous policy of allowing a 10-year life extension. It assumes that its meters will pass the statistical sampling tests to allow a 5-year extension. The reasons it gives for its change in replacement policy are that, in its view, the repeated extension of lives is likely to lead to increased numbers of meters registering less accurately and that it anticipates that large numbers of new meters may be manufactured to lower standards or installed to lower standards.

We do not agree with the reasons put forward by Jemena for its accelerated replacement policy for residential meters, as there is no reason why a further life extension should not be countenanced if the sampling tests are passed, replacement meters of inferior quality should not be bought and installation work of inferior quality should be rejected.

We noted that no business case had been presented by Jemena outlining the costs and benefits of its proposed change in replacement policy.

We consider a 20- to 25-year life reasonable for residential gas meters. We accept that meters are not all of the same design or operate in the same environment but it is reasonable to assume that only a portion, not all, will require replacement after 20 years. We consider that a gas distribution business, acting prudently and efficiently, would allow for this and we therefore recommend that the residential aged meter replacement expenditure forecast be reduced in volume.

We are unable to calculate the reduction required as no information on the age profile of the meter population (or on adjusted remaining lives after testing) was provided. No information was provided on special factors, if any, applicable to particular types of meter.

In addition, calculation would require a view to be formed on the portion of the meter population as a whole that could reasonably be expected to fail a second sampling test. No information was provided on that matter either.

In the absence of that information, we have estimated the reduction by assuming a level of expenditure equal to the average of the upper and lower bounds, recommending that the amount involved ($39.4 m) be halved in relation to volume. The adjustment could be reconsidered if the business provides the missing information.

Concerning the unit replacement cost of the meters, we reviewed Jemena's residential meter replacement rates and found them comparable with those of other gas distribution businesses. However, because of the lack of detailed cost data, we are not able to attest to the cost efficiency of the expenditure."

In relation to this matter, JGN states on p. 51 of its *Initial Response*,

"Metering assets are forecast to be replaced to meet the new regulatory and metering standard requirements. The new metering accuracy standard almost eliminates the likelihood [of] residential meter life extensions beyond 20 years. Analysis has been completed to determine the most cost effective method of meeting the requirements given the age and performance of the assets and their impact on revenue and UAG."

Pp. 2-4 of JGN's appendix 3b.9 states,

"AS4944-2006 was introduced in 2007 and become [sic] obligatory in NSW in 2008. This means that the first meters to have received an in service life extension under this standard are due to reach the end of 5 year in life extension in the proposed access arrangement period.

Prior to the introduction of AS4944-2006 a meter's initial life could be up to 15 years and based on sampling the meter could receive a further in service life extension of 10 years. Meters whose life was extended under the previous regulations are also reaching the end of the extension in service life in the proposed access arrangement period.

> JGN has a policy of seeking an initial extension to a meters life where it is prudent and efficient to do so. There are a limited number of circumstances where JGN will not seek to sample a meter population to extend the life of that class of meter. These relate to meters where JGN is of the view that it is unlikely that the sampled meters will be found to warrant a life extension or where the meter population is small so that it is not economically efficient to sample the meters.
>
> At the current time, sample testing has not been conducted for [the] majority of the meters included in the 5-year meter replacement program.
>
> JGN has forecast a replacement profile for its residential meters based on the meter accuracy requirements as laid down in the regulations, the age of JGN's meter population and the ability to extend a meters service life.
>
> The forecast replacement rates for aged residential meters are based on the following information:
>
> - 15 year old meters with a proven history will be sampled to seek an in service life extension
> - 15 year old meters with a history of problems will be replaced without sampling
> - 20 and 25 year old meters are highly unlikely to pass sampling and will be replaced…"

Continuing on p. 4, JGN states,

> "Table 1-1 shows that in the 2010-11 and 2011-12 programs the majority of meters will be extended from 15 to 20 years of in-service life. The decrease in the proportion of meters whose life will be extended from 2011-12 onwards reflects that meters, whose life was originally extended by ten years, are reaching the end of their expected life."

JGN claims in its response of 19 April to the AER's questions of 13 April that there are inconsistencies in our report in that we attributed the change in replacement policy to it, whereas it stemmed from a regulatory change. However, that should have been clear from the preceding paragraph in our Final Report, as cited above, in which we stated the situation:

> "Concerning aged residential meter replacement ($39.4 m), Jemena notes in its AMP that a new statistical sampling standard came into force in 2007 that, together with other circumstances, limits life extensions to 5-year increments. The life extensions are acceptable if satisfactory results are obtained from statistical testing of meter populations."

JGN also claims that our report is deficient in not citing evidence to support our assertion that a life of 20-25 years is reasonable for residential gas meters. JGN considers that our view is not reasonable, given that:

> "manufacturers in general offer only a one year warranty on their product, manufacturers rarely quote "design lives" for their products in excess of 15-20 years, [and] the industry having many examples of meter populations that have been unsuccessful in achieving a first life extension after 15 years in service, as well as having many instances of meter populations where first extensions were not sought because of the poor condition of the meters."

We reject that criticism as the onus is on JGN to provide evidence to support its claim that its meter lives cannot be extended to the extent previously assumed (that is, to the extent achieved before the regulatory change). In addition, we place no weight on JGN's statements in relation to the limited length of manufacturers' guarantees as it is normal commercial practice for manufacturers to limit them; and we place no weight on JGN's statements in relation to the length of manufacturers' stated design lives as it is normal commercial practice for them to be stated conservatively.

JGN infers that we had not taken into account the fact that, in Australia, residential gas meters are in most instances, installed in unprotected outdoor locations and thus are exposed to the weather, leading to increased levels of wear including corrosion, water entry and UV radiation. Its inference is incorrect.

JGN states in its response of 19 April,

> "While it is not possible to determine in advance whether a meter population will successfully pass the requirements for life extension, for the reasons outlined above it is reasonable to assume that certain populations will not pass. In these circumstances it would be inefficient to undertake a sampling and testing project given the associated costs and given that if the results do not support the granting of an extension, then a much shorter timeframe is available for removal of the meters from service resulting in increased replacement costs associated with an accelerated program."

However, no evidential material is provided by JGN in support of this claim.

Parsons Brinckerhoff's report on non-routine capex submitted with the *Initial Response* states,

> "The decision to allow only a single life extension is based on JAM's knowledge and experience in operating the network and represents a compromise between a) seeking to extend asset life and defer replacement expenditure; and b) not undertaking sampling and testing programs which typically fail in achieving a five year life extension. JAM stated that experience indicated that 20-year-old meter populations would not pass testing to achieve another five-year extension. **Evidence of this statement was not available since the change in policy is relatively recent** [our emphasis added].
>
> The practice in Victoria is to apply a second life extension of one or three years since meters do not typically pass testing to achieve a five-year extension. Extensions of one or three years are currently not allowed in NSW so JAM does not believe the cost associated with testing is justified."

We consider in relation to that view that a gas pipeline business such as JGN should have available at least some evidential material on the condition and likely remaining life of its meters, especially given the significant investment involved when they are replaced. Thus, we did not consider that the "recent" nature of the policy change excused a lack of evidential material — in this case, a total lack.

Table 1.1 of JGN's *Initial Response* gives the numbers of meters proposed for replacement at 15, 20 and 25 years and the numbers proposed for life extensions from 15 to 20 years. However, it is not possible to identify the ages of the meters in the column headed 'proposed for replacement at 15, 20 or 25 years and so a calculation of the additional replacement numbers and costs arising from JGN's proposal of only allowing for one five-year life extension cannot be made.

We accept that the new metering standard only permits a life extension of five years and this will result in additional cost if a further extension is required, compared with the previous situation where a 10-year extension was possible. We also accept that the new standard is more rigorous and the proportion of meters not meeting the required accuracy to permit extension may be higher than before. However, as we have just noted, no evidential material is provided by JGN in support of its claim; and the fact that a proportion of JGN's metering stock has remained in service beyond 20 years gives weight to our view that a life of 20-25 years is reasonable for residential meters.

In our view, JGN has not addressed the specific points raised in our Final Report in that it has not provided evidential material in support of its claim that a second life extension of its residential meters is impractical. For example, not even the evidence that would have been available from a small-scale random sample analysis or from an analysis of trends in

accuracy vs. age has been provided, although we would have expected that type of information to be available.

Nor has it addressed the rebuttal, in our Final Report, of the other arguments it raised originally (that large numbers of new meters may be manufactured or installed to lower standards, etc).

In essence, JGN's case appears to rely on its stated experience, without evidential support.

Particularly given the magnitude of the investment involved, we do not consider that it would be appropriate for us to modify our opinion, based on that case.

Industrial and Commercial Meter Replacement

In our Final Report, we said in relation to industrial and commercial meter replacement:

> "Jemena classifies industrial and commercial meters by their type –diaphragm, rotary or turbine. Industrial and commercial meters are subject to the same rule in relation to age before testing as the other gas meters discussed in this report but Jemena states in its AMP that it elects to refurbish or replace turbine meters at 5-yearly intervals, rotary meters at 10-yearly intervals and diaphragm meters at 15-yearly intervals to ensure metering accuracy on the larger loads experienced in this market category and to reduce the incidence of loss of supply due to rotary meter failure. Meters are refurbished where economic and the age profiles provided in its AMP show in-service meter ages of up to 35 years.
>
> Jemena noted its experience with older rotary meters that deteriorate in accuracy due to un-repairable wear. [36] It proposes a policy of refurbishing rotary meters once only, giving a maximum life of 20 years. [37]
>
> Concerning turbine meters, Jemena notes a number of design issues with its current stock and states that a substantial number are likely to register gas consumption incorrectly due to over-sizing arising from customers' reduced gas consumption or to "incorrect" pipe configurations where turbine meters have replaced rotary meters in the past. It states that the forecast expenditure is based on continuing to "down-size" meters to match gas consumption and to replace meters of old design with new turbine or rotary meters. It notes that this will increase the capital expenditure in this category over the next period but that it will result in lowered capital demands in subsequent periods, as the refurbishment cycle will be increased to 10-years for meters of this type.
>
> PB reviewed this expenditure programme in its report and we noted that it considered the project drivers, scope of work, and timing appropriate. PB noted that unit costs for the work are based on the experience of past works but did not offer an opinion on the efficiency of the rates. It noted, "JGN's case for compliance with Rule 79 could be better supported by a discussion on the potential reduction in unaccounted-for-gas and/or operating costs compared with the increased capital expenditure of replacing the industrial and commercial meters at a greater frequency than statutory requirements". However, it concluded, "PB considers that the basis of cost estimates is reasonable, and therefore complies with Rule 74, however recommends that the presentation of the information be improved". [38]
>
> We infer PB to mean that more information on these matters should have been provided by Jemena to demonstrate the appropriateness and cost efficiency of the proposed expenditure.
>
> Likewise, we would have expected Jemena to underpin its proposed strategy and expenditure in this area with technical details of the programme and details of the targeted improvement in meter accuracy, the targeted reduction in UAG and the

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[36] The AMP notes that the refurbishment of rotary meters is limited to replacement of bearing sets, cleaning and calibration.

[37] We note from the age profile information in the AMP for these meters that there are a number older than 20 years that would presumably need to be replaced under such a policy but the charts did not lend themselves to further analysis.

[38] AAI, appendix 7.4, p 36.

> targeted improvements in other performance measures but no such information was received.
>
> For these reasons, the lack of technical data and detailed cost data, we are not able to attest to the cost efficiency of the expenditure ($23.5 m)."

No adjustment was made in relation to this expenditure on the assumption that JGN would provide, to the AER, a satisfactory justification for it.

JGN provided additional technical information on this matter in appendix 3b.9 to its *Initial Response* and, on review, we considered the new information to be adequate.

Accordingly, we withdraw the reservation stated in our Final Report in relation to this expenditure.

Motor Vehicle Fleet Replacement

In our Final Report, we said in relation to motor vehicle fleet replacement:

> "Capital expenditure on motor vehicle fleet replacement is estimated to be $22.8 m, an increase of 135% over the level in the present period. In its AAI, Jemena notes that it has an aging fleet and that vehicle replacement is based on age and mileage but it does not disclose details such as the age profile of the fleet or other information that would underpin this expenditure. The reason for the jump in expenditure from the level in FY 2010 of $1.7 m p.a. to a peak of $8.2 m in FY 2014 is not explained.
>
> Without any information on the method of calculation, we consider that the level of expenditure in the present period should be maintained and an adjustment is recommended accordingly."

Based on new information on the breakdown of vehicle replacement numbers and confirmation that the figure of $16.7 m stated in the opening paragraph of appendix 3b.8 was an error, we are satisfied that the capital expenditure proposed in table 1-3 of Appendix 3b.8 is reasonable. [39]

Accordingly, we withdraw the adjustment made in our Final Report in relation to this expenditure.

Adjustment Related to Reverse Gas Flow in Wollongong-Wilton Pipeline

In our Final Report, we said:

> "…the final item in the list in appendix 7.6, the "Reverse Gas Flow - Wollongong to Wilton (Licence 2)" project has the "detailed" description: "Cost to maintain the integrity of the asset outweighs the return on capital. Licence 2 pipeline could be better utilised by hauling gas from EGP pipeline at Wollongong to JGN Licence 1 pipeline at Wilton". We considered that this item needed further explanation. The expenditure involved is $15.6 m and we recommend that it be deleted unless Jemena is able to clarify its purpose and cost efficiency."

This expenditure is now understood to relate to an allegedly stranded asset.

We understand that the AER took up the matter in its draft decision and we have nothing to add in relation to it in this review.

Other Adjustments

In relation to the other adjustments made to the recommended level of capital expenditure in the next period, we stated in our Final Report:

> "The adjustments concerning the customer services metering and billing contingency and the organic growth in IT infrastructure have been made pending the provision of clarifications to the AER by the business.

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[39] These clarifications were received in JGN's response of 19 April to the AER's questions of 13 April.

> Expenditure on market changes and access arrangements has been left for the AER to consider…, noting our query [earlier statement, 'It is not clear to us why expenditure related to "access arrangements" should be capitalised (its inclusion in the schedule of capital expenditure suggests that that is intended).']…
>
> Expenditure on workstations for additional FTEs has been removed, consistent with our assessment of the proposed step changes in operating expenditure. [40] "

The first of these items (metering and billing contingency) is discussed by JGN on p. 80 of its *Initial Response* and appears to be confirmed to be a contingency in nature, although its necessity is still claimed by JGN. The second (organic growth in IT infrastructure) is noted on p. 47 of JGN's *Initial Response* as being a contingency. The third (relating to market changes and access arrangements) was not assessed by us (but we removed the amount from the level of expenditure that we endorsed). The fourth item was related to our assessment of step changes and they have not been reassessed in this review.

No amendment of the findings in our Final Report appears necessary in relation to these items.

4.5 Conclusion in Relation to Capital Expenditure

JGN's revised proposal for capital expenditure in the next period and our revised recommendations in relation to adjustments to it are summarised in Table 4.

Table 4: Recommended Level of Capital Expenditure in Next Period ($ 2010 m)

FY ->	2011	2012	2013	2014	2015	Total
Jemena's revised (March 2010) proposal	166.2	169.7	165.5	187.7	201.7	890.8
Less revised reductions recommended:						
Network Capex						
Mines subsidence	c-i-c	c-i-c	-	-	-	c-i-c
Reverse gas flow: Wollongong-Wilton b/	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
Integrity digs and integrity management	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
Aged residential meter replacement	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
Non-Network Capex						
Customer services metering & billing cont.	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
Organic growth in IT infrastructure	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
AER: market changes & access arrangements b/	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
Work stations for additional FTEs	c-i-c	-	-	-	-	c-i-c
	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
*Removal of **[c-i-c]** % Margin b/*	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c	c-i-c
Adjustment of Pct for Capitalisation of O'heads b/	-	-	-	-	-	-
Recommended level of capex a/	146.7	145.6	142.9	160.2	169.1	764.5

a/ Subject to the qualifications in the main text. Figures may not add due to rounding.
b/ For determination by the AER.

Nothing in this table is intended to imply that any adjustment to the **[c-i-c]**% margin found necessary by the AER should be restricted to adjustment of the margin as a whole as opposed to adjustment of parts of its application, should that be found appropriate.

[40] A similar amount has been removed from the expenditure reported for FY 2010 in our consideration of capital expenditure in the present period.

4.6 Deliverability

Finally, noting section 3b.4.6 in JGN's *Initial Response*, we considered whether JGN would be able to implement its plans or whether implementation would be constrained by a lack of resources.

JGN has obviously recognised that it will be competing with other Australian gas distribution businesses, as well as in the broader international market, for resources and expertise to implement its proposed investment programme and states that it has the processes in place to do so.

It has not presented a comprehensive assessment of its labour requirements or of its other requirements to the AER but it has pointed out that JAM is capable of economies of scale that would not be available to JGN operating alone and that it has demonstrated its ability to meet an increased capital expenditure programme in the past. From our knowledge of the business, we concur with those views.

We conclude that there is no reason obvious to us why JGN cannot complete the additional workload foreseen, providing it takes concerted action for the purpose.

5 Conclusion

5.1 Opinion

Having considered the new 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 JGN's expenditure proposals in relation to its network is as stated below.

(a) We recommended in our Final Report that the base-year level of operating expenditure be set at a reduced level and that adjustments be made to reduce the requested level of technical step changes. Jemena has submitted a revised operating expenditure proposal based on its audited actual expenditure in the base year, FY 2009, together with various supporting documents that we have reviewed. However, we are still unable to attest to the efficiency of the base-year expenditure as insufficient information has been supplied in relation to it. We therefore retain the opinion expressed in our Final Report, recommending a newly calculated reduction in the base-year level.

(b) We concluded in our Final Report in relation to Jemena's forecast capital expenditure in the next period that its prospective efficiency was not adequately demonstrated by Jemena and thus we were able to recommend only that the forecast level of expenditure be accepted as reasonable in terms of scope, subject to various adjustments that we proposed. New information provided by Jemena has enabled us to accept the level of the proposed expenditure as efficient with certain adjustments, albeit with the benefit of some doubt as the new information supplied was at best the bare minimum required. Our opinion is qualified by continued doubts in respect of the appropriateness of the **[c-i-c]**% margin added to the cost estimates and in respect of the capitalised overheads, in respect of both of which we set out various points of principle in our Final Report and which we were not required to examine further in this review.

None of the following matters have been re-examined in this review: Jemena's actual and forecast capital expenditure in the present period; Jemena's proposed step changes in relation to operating expenditure in the next period; the roll-forward of base-year operating expenditure; and the proposed volume of unaccounted-for gas. Our findings in relation to these matters therefore remain as stated in our Final Report.

5.2 Credentials

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 Pat Hyland and Mr Bernard Ivory with peer review by Mr Derek Walker. All the reviewers are of Wilson Cook & Co. The reviewers' credentials are as stated in our Final Report.

5.3 Independence

Wilson Cook & Co Limited and its reviewers are all independent of JGN 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 the requisite data for this review and whilst our findings were discussed with the AER on the conclusion of our draft report, we are satisfied that the comments made by the AER have not influenced our opinion improperly but served only to ensure that it addressed the issues sufficiently fully for its purposes.

5.4 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 JGN's assets and nothing in this report shall be taken to convey any such undertaking on our part to any party whatsoever.

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

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Non-Publication

With the exception of its publication by the AER, in relation to its review of JGN'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.