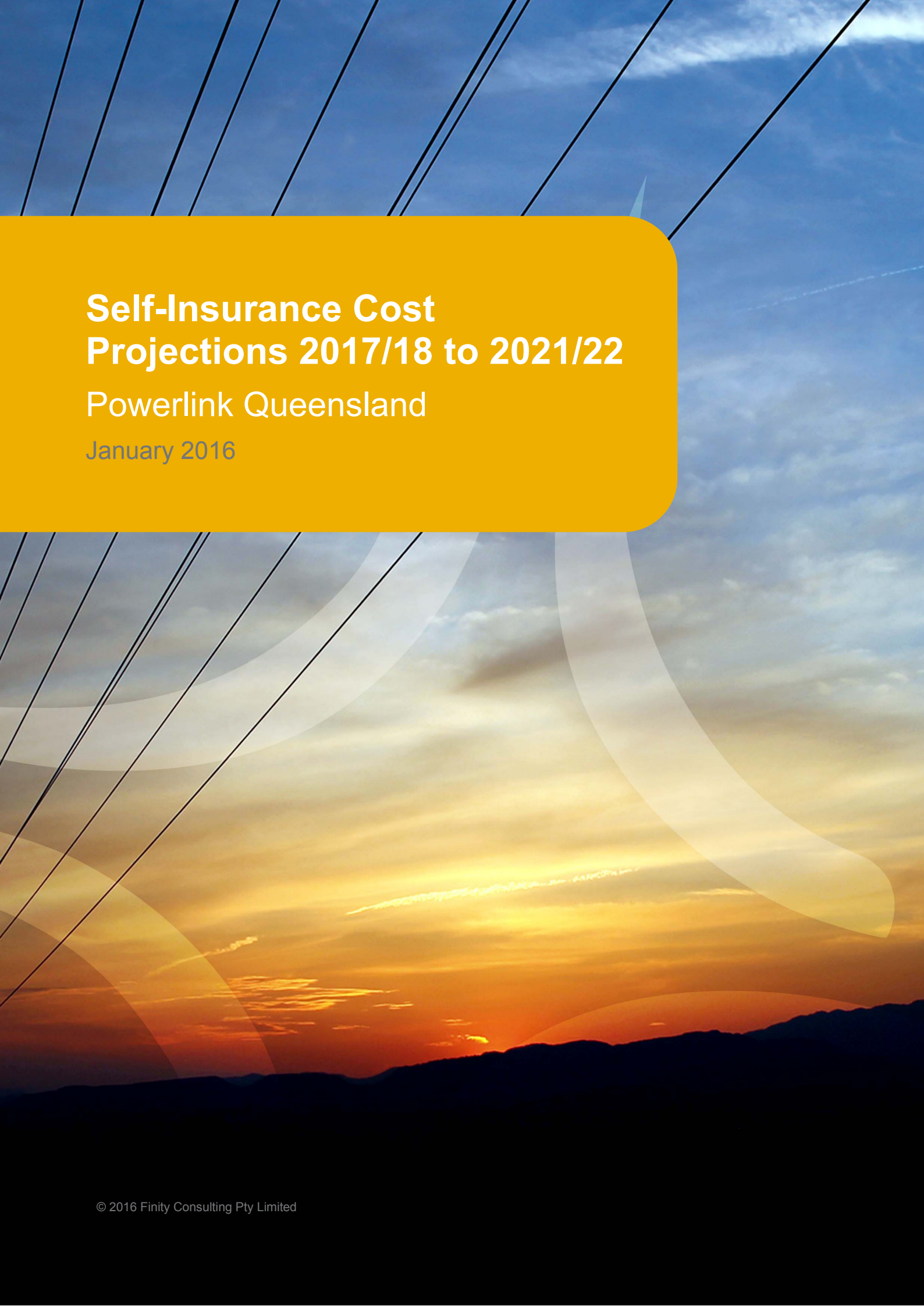
2018-22
POWERLINK QUEENSLAND REVENUE PROPOSAL

APPENDIX 6.03 - PUBLIC

Finity Consulting
Self-Insurance Cost Projections 2017/18 to 2021/22

Delivering better value



Self-Insurance Cost Projections 2017/18 to 2021/22

Powerlink Queensland

January 2016

28 January 2016

Mr Greg Bolton
Manager Governance & Risk
33 Harold Street
Virginia QLD 4014

Dear Greg

Self-Insurance Cost Projections 2017/18 to 2021/22

In accordance with our proposal of 11 May 2015, we are pleased to enclose our report documenting our recommended self-insurance costs for the regulatory period 2017/18 to 2021/22.

We confirm that we have made all the inquiries that we believe are desirable and appropriate and that no matters of significance that we regard as relevant have, to our knowledge, been withheld.

Please do not hesitate to contact either of us should you have any queries in relation to the report.

Yours sincerely

Mark Hurst Adam Payne

Fellows of the Institute of Actuaries of Australia

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Self-Insurance Cost Projections 2017/18 to 2021/22

Part I Executive Summary

1 Background and Scope

Finity Consulting Pty Limited (Finity) has been engaged by Powerlink Queensland (Powerlink) to provide an estimate of their self-insured losses for the five year regulatory period spanning 2017/18 to 2021/22. Our advice has been prepared pursuant to our proposal dated 11 May 2015. We understand that this report will be provided to the Australian Energy Regulator (AER) as part of Powerlink's regulatory proposal for 2017/18 to 2021/22.

We acknowledge that we have read, understood and complied with the Federal Court of Australia Practice Note CM7 "Expert Witnesses in Proceedings in the Federal Court of Australia". The advice set out in this report has been prepared by Mark Hurst and Adam Payne of Finity, both of whom are Fellows of the Institute of Actuaries of Australia. Our experience and qualifications are set out in Appendix B of this report. This report has been developed based on material provided by Powerlink, its Brokers, market research and relevant insurance and industry references.

This Executive Summary summarises the key findings of our work. The main body of the report provides a more complete description of our analysis and results, including reliances and limitations, and should be read fully in order to place our findings in their appropriate context.

2 Approach

Self-insured losses can be categorised into losses relating to insurable events up to Powerlink's insurance deductibles (below deductible losses), losses relating to insurable events above Powerlink's insurance limits (above-limit losses) and losses on uninsured risks.

We understand that Powerlink's insurance program covers all assets (including towers and lines) and hence there are no uninsured property/asset risks.

Below deductible Losses

Our below deductible estimates include allowance for the following classes of risk where historical losses have occurred:

- Towers and Lines,
- Property or Industrial Special Risks (ISR), and
- Other losses (includes property theft and damage and motor vehicle losses).

Our approach to estimate Powerlink's below deductible losses for ISR and Towers and Lines is based on Powerlink's ground-up loss experience, capped at the current insurance deductible, by class of business. Specifically we:

1. Compared Powerlink's self-insurance losses in recent years with the self-insurance allowance from recent AER determinations (i.e. both the 2007/08 to 2011/12 and the 2012/13 to 2016/17 determinations) to help assess the appropriateness of our previous assumptions and forecasts.

2. Separated the self-insurance loss experience into losses that have exceeded Powerlink's current insurance deductible and those that haven't. Any losses exceeding the deductible have been capped at the deductible.
3. For losses 'exceeding the deductible' we selected an annual future number of losses and a corresponding average loss size based on Powerlink's medium to long term loss experience.
4. For losses 'fully below the deductible' we selected a loss rate (expressed as a percentage of asset values) based on Powerlink's recent exposure.

Note that:

- For our analysis we inflated historical losses to 2016/17 end-of-year dollars (i.e. June 2017) and applied the current insurance arrangements. We expressed our results in 2016/17 end-of-year dollars to be consistent with the Powerlink's overall regulatory proposal. For the remainder of this report we refer to 2016/17 end-of-year as 'June 2017' or '$Jun-17'.
- For this assessment, asset values have been used for projection of 'fully below the deductible' losses. We note losses 'exceeding the deductible' are not adjusted for changes in asset values. Analysis of the relationship between Powerlink's history of large losses and the change in asset values suggests there has been no clear correlation between asset values and Powerlink's large loss experience.
- We have assumed that all insured losses will be fully recoverable from Powerlink's insurers.

Above Limit Losses

Losses above Powerlink's insurance limits have been nominated as a pass through event rather than being included in the self-insurance loss allowance shown in this report. Refer our separate report *"Pass Through Events 2017/18 to 2021/22"* for more details.

In Section 9 we assess the appropriateness of Powerlink's insurance limits.

Validation of data

We have only included self-insurance estimates where there is historical loss data to support our estimates. We have relied on the accuracy and completeness of all data and other information (qualitative, quantitative, written and verbal) provided to us by Powerlink for the purpose of this report. We have not independently verified or audited the data but, where possible, we have reviewed it for general reasonableness and consistency. Specifically, we carried out the following checks to validate the data:

- We have checked the data for reasonableness.
- Reconciled the data provided for the current assessment against the data provided for the previous report.
- Reconciled the historical self-insurance losses provided by Powerlink with insurance loss data provided by Marsh to ensure validity and consistency of the data used.

We found no significant inconsistencies or problems with the data which we would expect to materially affect our results.

Note that our self-insurance estimates do not include maintenance and operational expenditure costs. This statement is predicated on the basis that the historical self-insurance loss data provided by Powerlink excluded these costs. This ensures there is no double counting, as costs relating to scheduled maintenance and unscheduled maintenance are included in Powerlink's operational expense component of the regulatory proposal.

3 Findings

Actual Versus Forecast Losses

We have compared Powerlink's long-term loss experience against the self-insurance allowances from Powerlink's recent determinations to check the appropriateness of our previous assumptions. Specifically, the following table compares:

- Below deductible losses (ISR, Towers and Lines and Other losses) over the last eight years to 30 June 2015, to
- The self-insurance allowances determined in Powerlink's previous two AER determinations (2007/08 to 2011/12 and 2012/13 to 2016/17). Note that the 'Previous Determination' figures for 2012/13 onwards are based on the final determination, that is, allowance has been made for adjustments by the AER following Powerlink's proposal.

All cost figures are in nominal dollars of the year of loss.

Table 1 – Actual versus Forecast Below Deductible Losses (nominal dollars)

[redacted]

It is assumed that over the medium to long term, individual year on year costs and allowances for self-insurance net out.

Projected Self-insurance Losses

We have estimated Powerlink's future self-insured losses for each of the insurance treaties in the current insurance program where historical losses have occurred. These are Towers and Lines, ISR and Other classes (includes property theft and damage and motor vehicle losses).

We note that Powerlink has a separate liability insurance treaty. However, liability loss estimates are not included in this report for reasons of materiality given Powerlink's low deductible and minimal loss history.

Our estimate of the annual cost of self-insured losses for the next regulatory period is shown in Table 2 below. As noted above, the self-insurance losses in this report relate to below deductibles losses only.

[redacted]

Total	**1,486**	**1,485**	**1,478**	**1,470**	**1,469**	**7,388**

Our estimate of below deductible losses over the next regulatory period 2017/18 to 2021/22 is $7.4 million in June 2017 dollars. [redacted]

[redacted]

Our estimate of Powerlink's self-insurance losses show a slight downward trend and are $1.5 million per annum for the five year period to 2021/22.

Note that the estimates shown in Table 2:

- [redacted]
- As required by Australian actuarial professional standards are central estimates (i.e. intended to be the mean or expected value of the liabilities), include an allowance for future changes in the value of Powerlink's transmission line network and substations (as provided by Powerlink) and are undiscounted. The above estimates do not contain margins for expenses, reinsurance or profits and hence are likely to be lower than the equivalent commercial cost of insurance (if it was available).
- Are consistent with the premium forecasts included in our report "Insurance Premium Projections 2017/18 to 2021/22" as we have been able to ensure that estimates for self-insurance and insurance are based on consistent insurance arrangements with no overlap of results.

4 Reliances and Limitations

Our estimates are based on best estimate assumptions and represent our current assessment of the likely future experience of Powerlink. Although the estimates we have prepared are best estimates, deviations of the actual experience from our estimates are normal and to be expected.

The reader's attention is drawn to the reliances and limitation of our advice as set out in Section 11 of this report.

Part II Detailed Findings

1 Introduction

Finity Consulting Pty Limited (Finity) has been engaged by Powerlink Queensland (Powerlink) to provide an estimate of their self-insured losses for the five year regulatory period spanning 2017/18 to 2021/22. Our advice has been prepared pursuant to our proposal dated 11 May 2015. We understand that this report will be provided to the Australian Energy Regulator (AER) as part of Powerlink's regulatory proposal for 2017/18 to 2021/22.

1.1 Background

Powerlink is a government-owned organisation that owns Queensland's high-voltage electricity transmission network. The network extends 1,700 km from the northern NSW border up to far-north Queensland. Powerlink's main activity is transportation of electricity on its high-voltage transmission network from generators to an electricity distribution network and major high voltage customers. The AER sets allowable maximum revenue for Transmission Network Service Providers (TNSPs) for each five year regulatory period.

The key assets of the network are the transmission structures and lines, and substations. These assets are insured, with Powerlink holding levels of exposure both above and below the policy limits.

1.2 Scope

The scope of our review is to provide estimates of Powerlink's self-insured, or retained, losses across the five year period commencing 1 July 2017 and ending 30 June 2022. The estimated self-insurance losses include losses up to the insurance deductibles. However, they potentially may also include losses above insurance limits or other losses which are not captured by nominated pass through events.

Our below deductible estimates include allowance for the following classes of risk where historical losses have occurred:

- Towers and Lines
- Property or Industrial Special Risks (ISR)
- Other losses (includes property theft and damage and motor vehicle losses).

We note that Powerlink has a separate liability insurance treaty. However, liability loss estimates were not included in this report for reasons of materiality given Powerlink's low deductible and minimal loss history.

In addition, we have also considered above insurance limit losses and the adequacy of insurance limits relative to Powerlink's exposure in Section 9.

In Section 10, we consider whether the balance between Powerlink's insurance, self-insurance and nominated pass through arrangements is efficient and prudent.

1.3 Risks

Powerlink has, historically, been subject to losses from the following perils:

- Storm damage (from thunderstorms, wind storms and cyclones)
- Flood
- Machinery breakdown
- Theft of property
- Damage to Powerlink motor vehicles and property
- Damage to third party property.

There are also perils not listed above, for example, credit risk, terrorism, war, invasion, nuclear risks and tsunami (or other action by the sea). There are no historical losses relating to these perils and, more importantly, no data on the exposure of the electricity transmission networks to these perils. We have therefore not estimated or included a cost for such losses even though, in theory, the expected losses are greater than zero.

1.4 Basis of Estimates

We have prepared our estimated below deductible losses for Powerlink on the basis that they:

- Are central estimates (i.e. intended to be the mean value of the range of possible outcomes).[1]
- Take into account historical inflation by inflating all losses to June 2017 values. For our projected losses we have adopted a future CPI inflation rate of 2.45% per annum.[2]
- Are not discounted for investment income – in other words no attempt has been made to express the expected costs over the five years on a 'Net Present Value' basis.

Note that our estimates do not contain margins for expenses, reinsurance or profits and hence are likely to be lower than the equivalent commercial costs of insurance (if it was available).

1.5 Self-Insurance Losses vs Other Costs

The AER's revenue determination recognises TNSP's Operational expenditure (Opex) costs include, but are not limited to:

- Maintenance costs
- Insurance premiums [refer separate Finity report *"Insurance Premium Projections 2017/18 to 2021/22"*]
- Self-insurance (or retained) losses.

[1] Central estimates are set in accordance with the Actuaries' Institute's Professional Standard 300 and are intended to be an unbiased estimate of the mean outcome.
[2] Future inflation rate of 2.45% was derived from the Reserve Bank of Australia's (RBA's) short term (i.e. over the next two years) inflation forecasts and the mid-point of the RBA's inflation targeting band. This methodology is consistent with approaches previously approved by the AER.

In addition, in some circumstances, Powerlink may be eligible to adjust its Maximum Allowable Revenue (MAR) via pass through arrangements [refer separate Finity report *"Nominated Pass Through Events 2017/18 to 2021/22"]*.

It is important in any claim to the AER that there is no double counting of costs. We have endeavoured to achieve this by ensuring that costs allocated as being retained insurance losses only relate to losses that:

- Are not recoverable via an insurance policy, and
- Are not maintenance-related costs.

Ultimately, as the party with final responsibility for the regulatory proposal for 2017/18 to 2021/22, we have relied on Powerlink to ensure that there is no double counting of costs.

For this regulatory proposal, Finity has provided the premium forecasts and the self-insurance losses. Hence we have been able to ensure that estimates for self-insurance and insurance are based on consistent insurance arrangements with no overlap of results.

Note that our estimates of self-insured losses also do not include losses relating to structural failure from poor construction or maintenance.

1.6 Structure of report

The remainder of this report is set out under the following headings:

- Section 2 – Current Insurance Arrangements
- Section 3 – Exposure
- Section 4 – Industrial Special Risks
- Section 5 – Towers and Lines
- Section 6 – Liability
- Section 7– Other Losses
- Section 8 – Total Self-insured Losses
- Section 9 – Above Limit Losses
- Section 10 – Efficient and Prudent Program
- Section 11 – Reliances and Limitations.

The Appendices set out further details of our valuation.

2 Current Insurance Arrangements

For the classes of insurance where material self-insurance losses are expected we have assumed, based on discussions with Powerlink, and Powerlink's insurance brokers (CGNMB and Marsh), that the current insurance programme will remain unchanged for the regulatory period 2017/18 to 2021/22.

2.1 Summary of Insurance Arrangements

The table below contains a high level summary of the current 2014/15 insurance arrangements compared to the insurance arrangements which were in place in 2010/11.

[redacted]

Table 2.1 shows that over the last five years the:

[redacted]

In addition, Powerlink's insurance programme includes FINPRO lines, motor, construction and other ancillary policies.

2.2 Uninsured Risks

It is assessed that Powerlink has no obvious gaps or significant uninsured risks.

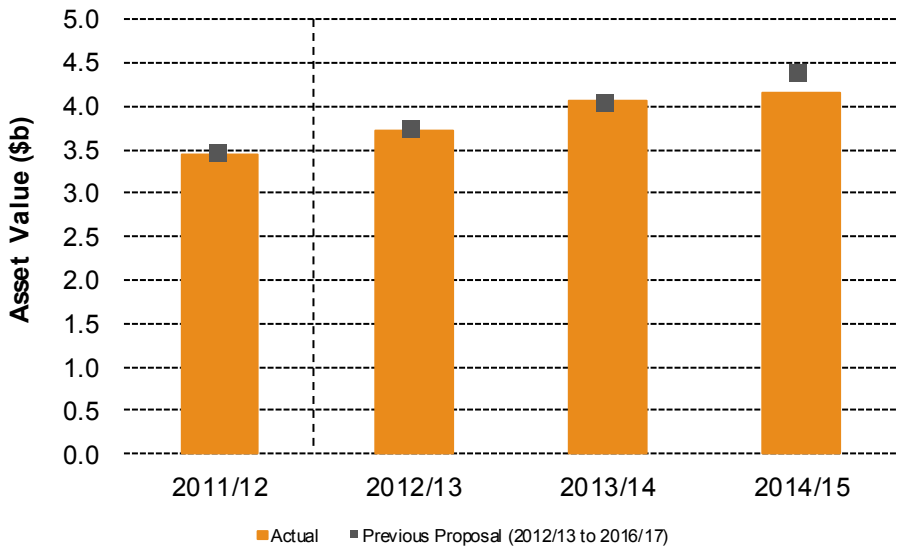
3 Exposure

Powerlink's historical and future asset values provide an exposure measure used as the basis to project 'fully below the deductible' self-insurance losses.

3.1 Actual versus Previous Proposal Asset Values

Figure 3.1 (Substations and Other Property) and Figure 3.2 (Towers and Lines) compare the actual historical asset values over the four years to June 2015 relative to the asset values included in Powerlink's previous regulatory proposal (2012/13 to 2016/17)[3]. For the previous proposal, the projected asset value growth for both Substations and Towers and Lines was assumed to be 8% per annum. All figures, both actual and projected, are in nominal dollars of the year.

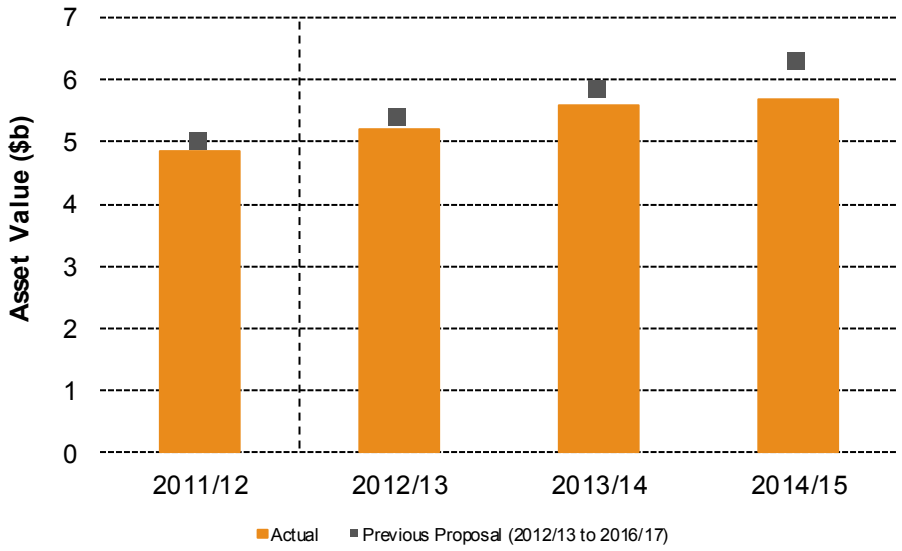
Figure 3.1 – Substation Asset Values: Actual versus Previous Proposal (nominal dollars)



For Substations, actual asset values have increased close to expectations at 7% per annum.

[3] The previous regulatory proposal relates to 2012/13 to 2016/17 but was undertaken in early 2011. As a result , asset values for 2011/12 were also projected in this proposal.

Figure 3.2 – Towers and Lines Asset Values: Actual versus Previous Proposal (nominal dollars)



Towers and Lines asset values increased by 5% per annum over the three years to June 2014, below the projected growth of 8% per annum. In 2014/15, Towers and Lines assets values increased by 2%.

3.2 Historical and Projected Asset Values

Table 3.1 and Figure 3.3 show historical and projected Substation asset values up to the end of the next regulatory period (i.e. to 2021/22). Projections are in nominal dollars and have been provided by Powerlink. The projected asset value growth is on average 3.3% per annum. Following discussion with Powerlink we understand that this lower rate reflects the expected minimal growth and expansion going forward.

Table 3.1 – Substation (and other property) Asset Values

Financial Year	Asset Value (nominal)	Asset Growth (nominal)
	($m)	
2004/05	1,691	
2005/06	1,905	12.7%
2006/07	2,080	9.2%
2007/08	2,350	13.0%
2008/09	2,698	14.8%
2009/10	3,025	12.1%
2010/11	3,198	5.7%
2011/12	3,441	7.6%
2012/13	3,729	8.3%
2013/14	4,056	8.8%
2014/15	4,166	2.7%
2015/16	4,260	2.3%
2016/17	4,422	0.0%
2017/18	4,628	4.7%
2018/19	4,762	2.9%
2019/20	4,907	3.0%
2020/21	5,042	2.8%
2021/22	5,193	3.0%

Figure 3.3 – Substation (and other property) Asset Values (nominal dollars)

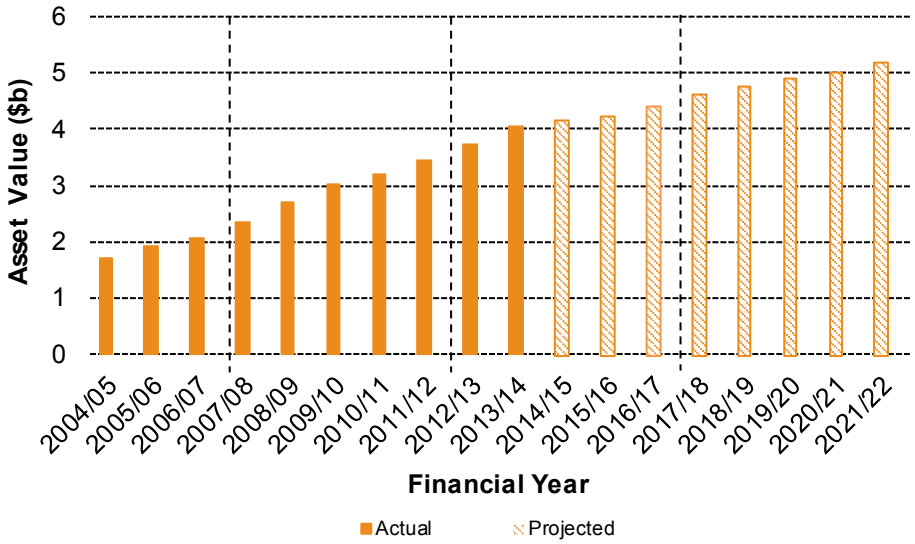
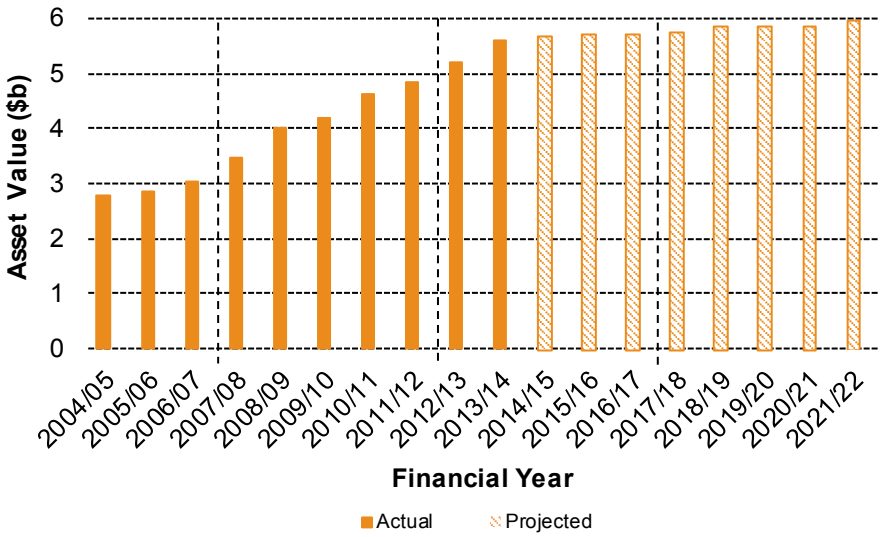


Table 3.2 and Figure 3.4 summarise the historical asset values for Towers and Lines to June 2015 and the projected values to the end of the next regulatory period (i.e. to 2021/22). Again, these figures have been provided by Powerlink. The average future growth rate is expected to be approximately 1% per annum.

Table 3.2 – Historical and Projected Towers and Lines Asset Values

Financial Year	Asset Value (nominal)	Asset Growth (nominal)
	($m)	
2004/05	2,781	
2005/06	2,869	3.1%
2006/07	3,048	6.3%
2007/08	3,479	14.1%
2008/09	4,015	15.4%
2009/10	4,202	4.7%
2010/11	4,608	9.7%
2011/12	4,851	5.3%
2012/13	5,207	7.3%
2013/14	5,597	7.5%
2014/15	5,692	1.7%
2015/16	5,711	0.3%
2016/17	5,737	0.5%
2017/18	5,751	0.3%
2018/19	5,859	1.9%
2019/20	5,869	0.2%
2020/21	5,879	0.2%
2021/22	5,974	1.6%

Figure 3.4 – Towers and Lines Asset Values (nominal dollars)



4 Industrial Special Risks

Industrial Special Risks losses refer to property damage losses other than those related to Towers and Lines. These losses include machinery breakdown and transformer failure. In this section we set out our analysis of Powerlink's ISR loss experience and our forecasts for the next regulatory period 2017/18 to 2021/22.

4.1 Historical Losses

4.1.1 Actual versus Forecast Losses

As ISR losses can be quite volatile we have compared Powerlink's longer term loss experience against the self-insurance allowances included for the two most recent determinations, to check the appropriateness of our previous assumptions. More specifically, the following table compares below deductible ISR losses over the last eight years to 30 June 2015 to the self-insurance allowances included in the previous two determinations (2007/08 to 2011/12 and 2012/13 to 2016/17).

All cost figures are in nominal dollars of the year of loss. 'Previous Determination' figures for 2012/13 onwards are based on the final determination, that is, allowance has been made for adjustments by the AER following Powerlink's proposal.

ISR losses over the last eight years to 30 June 2015 have been 67% below previous forecasts. However, it is important to bear in mind the volatility of these losses with instances of large ISR losses occurring prior to 2007/08.

4.1.2 Analysis of Historical Losses

Table 4.2 shows Powerlink's historical losses for ISR over the last 15 years. . Note that all losses have been inflated to June 2017 values.

Table 4.2 – ISR Loss Experience

[redacted]

4.1.3 Losses that exceed the deductible

[redacted]

We note that for losses which 'exceed the deductible':

- We have considered the last 11 years' experience to take account of the volatility of these larger ISR losses.
- [redacted]

4.1.4 Fully Below Deductible Losses

[redacted]

[redacted]

4.2 Projected Self-Insurance Losses: ISR

Based on Powerlink's historical claims experience, we have projected total self-insurance losses for ISR, separately for 'losses that exceed the deductible' and 'fully below deductible losses'.

Table 4.3 shows that:

[redacted]

Table 4.3 – ISR Projected Self-Insurance Losses

[redacted]

5 Towers and Lines

Towers and Line losses refer to losses relating to the failure or damage of Powerlink's transmission lines and tower structures. In this section we set out our analysis of Powerlink's Towers and Lines loss experience and our forecasts for 2017/18 to 2021/22.

5.1 Historical Losses

5.1.1 Actual versus Forecast Losses

The following table compares below deductible Towers and Lines losses over recent years to the self-insurance allowances included as part of the previous two determinations (2007/08 to 2011/12 and 2012/13 to 2016/17). All cost figures are in nominal dollars of the year of loss.

Table 5.1 – Actual versus Forecast Below Deductible Costs (nominal dollars)

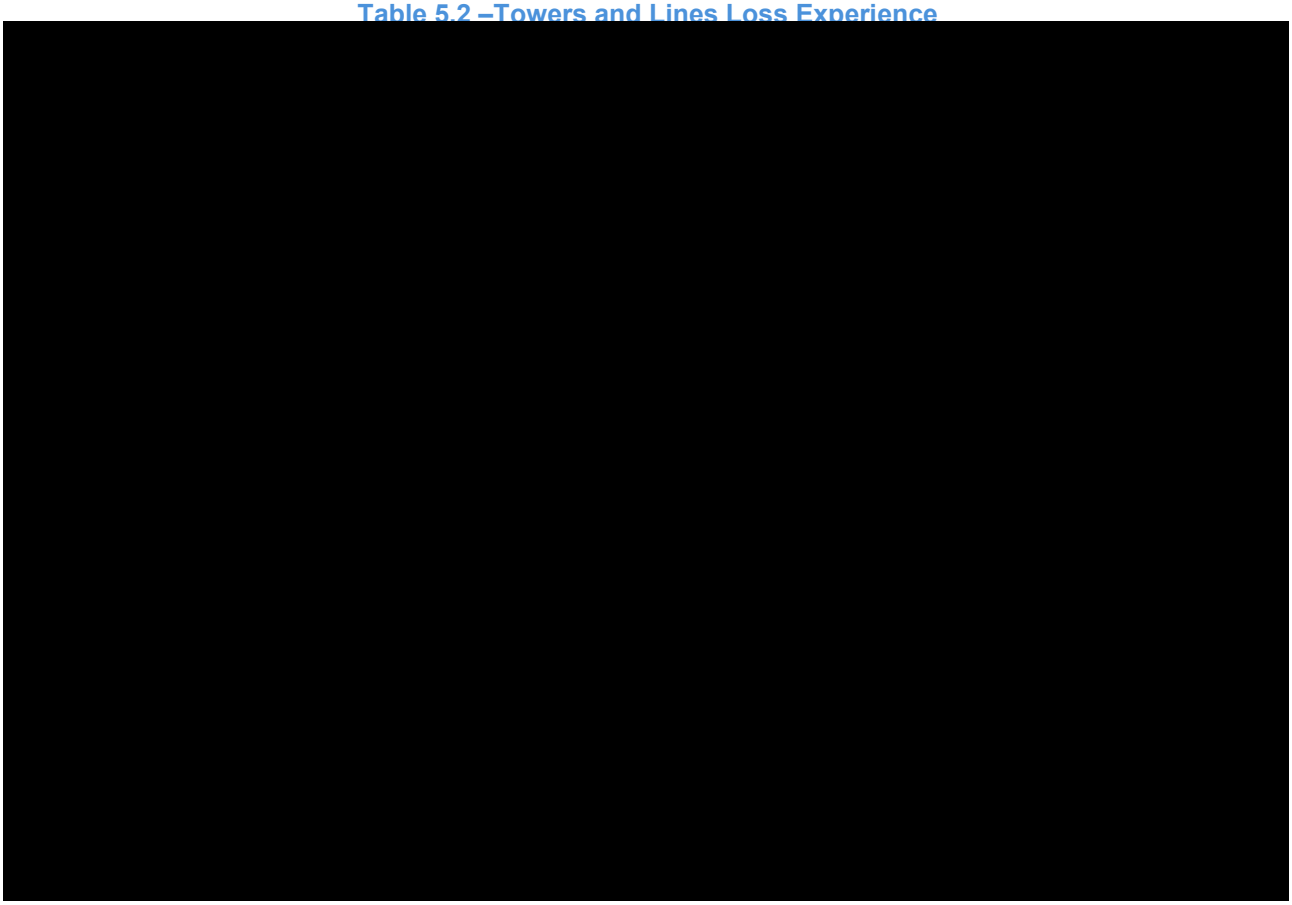
[redacted]

[redacted]

5.1.2 Analysis of Historical Losses

The table below shows historical numbers and costs over the last 15 years for Towers and Lines. We have adopted a similar approach to ISR losses [redacted] Note that all losses have been inflated to June 2017 values.

Table 5.2 –Towers and Lines Loss Experience



5.1.3 Losses that exceed the deductible

Over the last 15 years there have been

We note that for losses which exceed the deductible:

- We have considered the last 11 years' experience to take account of the volatility of these larger Towers and Lines losses.
-

5.1.4 Fully Below Deductible Losses

For 'fully below deductible losses' we have calculated historical loss rates expressed as a 'cost per million dollar of assets' derived from the total cost of losses divided by total towers and lines asset values.

. Based on discussions with Powerlink we understand that this is due to improved

reporting and recording of smaller self-insurance losses in recent times. [redacted]

5.2 Projected Self-Insurance Losses: Towers and Lines

Based on Powerlink's historical claims experience, we have projected total self-insurance losses for Towers and Lines, separately for 'losses that exceed the deductible' and 'fully below deductible losses'.

Table 5.3 shows that:

[redacted]

Table 5.3 – Towers and Lines Projected Self-Insurance Losses

[redacted]

6 Liability

[redacted]

7 Other Losses

'Other' losses largely relate to motor vehicle, small outage / third party claims, stolen or damaged equipment.

7.1 Historical Losses

7.1.1 Actual versus Forecast Losses

The following table compares the self-insurance allowance from the 2007/08 to 2011/12 and 2012/13 to 2016/17 AER determinations against actual 'Other' losses over the past eight years to 30 June 2015. All figures are in nominal dollars of the year of loss.

7.1.2 Analysis of Historical Losses

The table below summarises the total historical costs for 'Other' losses over the past eight years. We have analysed a loss rate expressed as a 'cost per million dollar of assets' derived from the total cost of losses divided by total asset values (property and towers and lines).

We have assumed any loss recorded in the self-insurance data would be retained by Powerlink. Therefore, below deductible costs are equivalent to total costs. The difference between total costs and below deductible costs in the table is due to inflation.

[redacted]

[redacted]

7.2 Projected Self-Insurance Losses

[redacted]

[redacted]

8 Total Self-Insured Losses

In this section we summarise the results from Sections 4, 5 and 7. In addition we have included a comparison to the self-insurance estimates from Powerlink's previous 2012/13 to 2016/17 final AER determination.

8.1 Summary of Forecast Self-insured Losses

Our estimate of the annual cost of self-insured losses for the next regulatory period 2017/18 to 2021/22 is shown in Table 8.1 below.

[redacted]

Total	**1,486**	**1,485**	**1,478**	**1,470**	**1,469**	**7,388**	8,526

Previous Determination (adjusted)[1]	1,638	1,669	1,702	1,739	1,778	8,526

[1] Figures from 2012/13 to 2016/17 Final Determination, allowance for AER deductions, inflated to Jun-17 values

Our estimate of below deductible losses over the next regulatory period is $7.4 million in June 2017 dollars. While Towers and Lines losses are infrequent, they can be severe and combined [redacted] contribute more than half of our estimate.

[redacted]

Our estimate of Powerlink's self-insurance losses is $1.5 million per annum for the five year period to 2021/22. Our estimates show a slight downward trend, consistent with the projected decline in real asset values over the regulatory period 2017/18 to 2021/22.

Note that the estimates shown in Table 8.1:

- [redacted] If these deductibles change then we expect that our estimate of Powerlink's retained losses will also change.
- As required by Australian actuarial professional standards are central estimates (i.e. intended to be the mean or expected value of the liabilities), include an allowance for future changes in the value of Powerlink's transmission line network and substations (as provided by Powerlink) and are undiscounted. The above estimates do not contain margins for expenses, reinsurance or profits and hence are likely to be lower than the equivalent commercial cost of insurance (if it was available).
- Are consistent with the premium forecasts included in our report "Insurance Premium Projections 2017/18 to 2021/22" as we have been able to ensure that estimates for self-insurance and insurance are based on consistent insurance arrangements with no overlap of results.

8.2 Comparison to previous final determination

Our current self-insurance estimate of $7.4 million in June 2017 values is comparable to the final estimate from the previous 2012/13 to 2016/17 determination of $8.6 million. The previous estimate shown in Table 8.1allows for the AER's $2 million adjustment to Powerlink's previous self-insurance regulatory proposal and has been inflated to June 2017.

Overall, our self-insurance estimate for the 2017/18 to 2021/22 regulatory period is $1.2 million, or 14%, lower than the previous allowance.

[redacted]

9 Above Limit Losses

In the case where a loss exceeds the insurance limit, Powerlink would be exposed to the loss amount in excess of the insurance limit. In the first instance, we understand that Powerlink will elect in this case for pass-through, provided insurance arrangements and limits are adequate. In this section we endeavour to consider the adequacy of insurance limits for Towers and Lines and ISR classes.

9.1 Towers and Lines

Analysis of Powerlink's Towers and Lines exposure suggests the likelihood of above limit losses is low. Powerlink have provided exposure information relating to the number of towers and length of transmission lines by region. Powerlink have also provided replacement costs of towers and transmission lines by voltage. This exposure has not change materially over the last five years.

We have applied a reverse stress testing approach to [redacted].

The results of the analysis are shown in the table below, split by transmission line voltage.

[redacted]

[redacted] We have compared these results to Powerlink's historical events:

[redacted]

[redacted]

Based on this analysis the Towers and Lines policy appears sufficient and adequate for Powerlink's exposure.

9.2 Property (ISR)

[redacted]

Table 9.2 – Large Property Exposures

[redacted]

[redacted]

9.3 Conclusion

The probability of exceeding the limits for both Towers and Lines and ISR classes is remote. Insurance limits appear sufficient and adequate for Powerlink's current exposure.

10 Efficient & Prudent Program

As part of our engagement, Powerlink have requested consideration of the optimal balance of insurance, self-insurance and nominated pass through. In this context we have defined 'optimal' as the most cost efficient, practical and adequate combination of the three elements. In practice the mix of insurance and self-insurance will be driven by market availability, capacity and Powerlink's risk tolerance.

We have nominated an "Insurance Cap Event" as a pass through event and hence have assumed that amounts above the limit (subject to the 1% Maximum Allowable Revenue threshold) will be treated as a pass through event.

10.1 Notional Premiums

We have estimated the notional premiums for each class of business, representing the market cost of insuring all self-insured losses. To estimate the notional premium corresponding to the estimates shown in Table 8.1 we have allowed for benchmark premium loadings. The benchmark loadings assumed are 10% of premiums for expenses and a 15% loading for profit. These loadings are based on commercial insurance benchmarks and are necessarily approximate. The margins sought by insurers can vary significantly depending on the types of risks being written, the level of uncertainty surrounding those risks and the stage of the insurance cycle. The benchmarks applied are thought to be typical of those that might apply for this type of large commercial business.

Table 10.1 shows the addition of these loadings to the estimated losses.

[redacted]

estimate is $9.5 million over the five year period. On this basis we could conclude that retaining the below deductible losses is efficient as they are most likely a lower cost option than the equivalent insurance premiums. We explore this concept further below.

10.2 Towers and Lines

Consideration of the optimal balance of insurance and self-insurance can be analysed by comparing the total retained costs of self-insurance and insurance premiums under a range of scenarios. [redacted]

Retained costs are in nominal dollars and correspond to the total projected below deductible costs over the five year regulatory period. We have used the notional premium concept explained in Section 10.1 to estimate insurance premiums.

[redacted]

The table shows that for Towers and Lines:

[redacted]

These figures should be taken as illustrative only in an endeavour to demonstrate that the current insurance arrangements appear to be prudent and cost efficient.

10.3 ISR

[redacted]

Retained costs are in nominal dollars. We have used the notional premium concept explained in Section 10.1 to estimate insurance premiums.

[redacted]

[1] Estimated extra premium based on expense and profit margin assumption of 10% and 15% respectively

The table shows that:

[redacted]

10.4 Conclusion

Overall, given the unique nature of this cover and the above analysis, we believe that Powerlink's insurance arrangements appear prudent and adequate.

11 Reliances and Limitations

We have relied on the accuracy and completeness of the data and other information (qualitative, quantitative, written and verbal) provided to us by Powerlink for the purpose of this advice. We have not independently verified or audited the data, but we have reviewed the information for general reasonableness and consistency. The reader of this report is relying on Powerlink and not Finity for the accuracy and reliability of the data. If any of the data or other information provided is inaccurate or incomplete, our advice may need to be revised and the report amended accordingly.

We have prepared our estimates on the basis that they represent our current assessment of the likely future experience of Powerlink. Sources of uncertainty include the limited number of past events on which to base our assumptions. Although the estimates we have prepared are best estimates, deviations of the actual experience from our estimates are normal and to be expected.

In making our estimates we have placed considerable reliance on the past experience of the portfolios. To the extent that estimates and assumptions are required there is a degree of uncertainty in the analysis particularly with the limited number of line failures and major substation losses. There are no margins included in our results to offset the potential impact of such uncertainty.

In estimating future retained insurance losses the result depends on a number of assumptions including the continuation of current insurance coverage and deductible levels and the treatment of the specified losses as retained insurance losses. These assumptions are subject to policy decisions by Powerlink, market forces and regulatory determination. Should there be any variation in these assumptions our results may change and should be reviewed and updated accordingly.

This report has been prepared for the sole use of Powerlink for the purpose stated in Section 1. It is not intended, nor necessarily suitable, for any other purpose. Members of Finity staff are available to answer any queries, and the reader should seek that advice before drawing any conclusions or any issues in doubt. The report should be considered as a whole.

We understand that Powerlink may wish to provide a copy of the report to the Australian Energy Regulator distributed on a ‘confidential’ basis. Permission is hereby granted for such distribution on the condition that the entire report, rather than any excerpt, is provided. No other use of, or reference to, this report should be made without prior written consent from Finity Consulting, nor should the whole or part of this report be disclosed to any other person.

Third parties, whether authorised or not to receive this report, should recognise that the furnishing of this report is not a substitute for their own due diligence and should place no reliance on this report or the data contained herein which would result in the creation of any duty or liability by Finity to the third party.

Part III Appendices

A Self-insurance Loss Summary

Table A.1 –Summary of Self-insurance Losses

B Experience and Qualifications

MARK HURST - Project Leader

Mark is a consulting actuary and Principal with Finity with 25 years experience in the general insurance industry. Mark has previously led similar projects for Powerlink in 2006 and 2011 and Energex and Ergon Energy in 2009 as well as a broadly similar assignment for Queensland Rail and Aurizon which involved providing the Queensland Competition Authority with an estimate of their annual self insurance costs.

Mark is leader of Finity's self-insurance practice and a member of the workers' compensation team. His general insurance experience includes outstanding claims reserving and providing advice to corporates with regard to their insurance arrangements.

Mark has been involved in a variety of projects for self-insurers, including:

- Valuation of outstanding claim liabilities and calculation of bank guarantees
- Examining the feasibility of organisations considering self-insuring liabilities
- Estimating the self-insured allowance for energy companies for submission to the regulator
- Providing advice to self-insurance pools regarding funding and outstanding claim liabilities
- Allocation of costs between operating divisions
- Assistance with self-insurance licence applications
- Development of key performance indicators
- Analysis of the volatility of claims experience and profits under self-insurance
- Advice regarding risk margins.

Mark has authored, or co-authored, several self-insurance papers including "Assessing the Financial Viability of Moving to Self-Insurance" and "Measuring the success of your self-insurance program".

In addition to Powerlink, Mark's self-insurance clients include Myer, The Star Entertainment Group, Linfox, DHL, Aurizon and Primary Health Care.

Mark has Bachelor of Economics and Science degrees from the Australian National University and is a Fellow of the Institute of Actuaries of Australia.

ADAM PAYNE - Senior Actuary

Adam is a consultant with Finity Consulting and has 15 years experience in actuarial consulting, specialising in the general insurance industry in the last 11 years. Adam worked on the Powerlink self-insurance project in 2011.

Adam has provided advice on reserve levels, pricing, financial projections and reinsurance strategy. Adam is also the APRA Appointed Actuary for a small boutique insurance company.

Adam is heavily involved in Finity's self-insurance practice and provides actuarial advice to a number of workers compensation self-insurers as well as a NSW specialised workers' compensation insurer.

Adam has been involved in valuing the asbestos reserves for a number of insurance companies, including valuing the insurance liabilities for the NRG group of companies as part of the Solvent Scheme of Arrangement. He was also part of the CGU External Peer Review team, specifically charged with reviewing the asbestos liability provisions.

Qualifications

- Fellow of the Institute of Actuaries of Australia, 2003
- Bachelor of Economics (Actuarial), Macquarie University, 1996

Work history

- March 2005 to present: Finity Consulting – Consultant
- 2000 to 2005: Trowbridge Consulting/Trowbridge Deloitte – Consultant specialising in general insurance
- 1996 to 2000: Mercer, Sydney – Actuarial Analyst and Consultant specialising in superannuation