

Mr Warwick Anderson  
General Manager-Network Regulation  
Australian Energy Regulator  
Via email: [AERInquiry@aer.gov.au](mailto:AERInquiry@ aer.gov.au)

Submission to the AER review of the Powerlink revenue reset application for 2012 to 2017

### **A brief explanation of PAGE**

Powerlines Action Group Eumundi Inc. (PAGE) is a community based group who are keen to see efficient, reliable and community endorsed power provision within Queensland. PAGE advocates a 'Least Cost Planning' approach to infrastructure investment. This avoids unnecessary expenditure on poorly utilised infrastructure and that alternatives to network augmentation are encouraged and supported and encouraged by the AER, Queensland Government and their agencies such as Powerlink in their planning and consultation processes.

PAGE was created to represent the people and landholders affected by the Powerlink Woolooga to Cooroy 275kV transmission line and Eerwah Vale substation project ("the Project") and is a key stakeholder on the future energy needs of the Sunshine Coast. The objectives of the group are to ensure that the concerns of the local community are effectively represented, their views communicated and the lowest cost and lowest impact solutions are developed to meet the energy needs of the region.

### **The Purpose of this document**

The purpose of this document and the attachments is to bring a number of issues to the AER's attention in respect of the Powerlink Revenue Reset Application 2012-2017 (RRA). We seek to provide constructive input and comment on Powerlink's application as PAGE believes the basis on which Powerlink have prepared their submission is flawed in respect of a number of key points.

PAGE is keen to have these matters addressed in the AER submissions process. Although Powerlink state that the Project approved in the 2007-12 revenue reset period has been terminated, it should be noted that a new easement acquisition project relating to supply to the Northern Sunshine Coast area is referred to in the 2011 Annual Planning Report (APR) without disclosing any further details relating to Powerlink's intention for this proposed augmentation in the RRA.

The following information details the issues which PAGE would like the AER to take into account when reviewing Powerlink's Revenue Reset Application

Whilst we believe the document and attachments are self-explanatory, we are of course available to provide further information if so required.

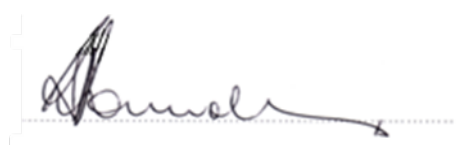
The attachments are:

Attachment 1 - Issues with the Powerlink Woolooga to Eerwah Vale project proposal,

Attachment 2 - Perf Electrics Woolooga to Palmwoods 132KV Sunshine Coast Power System Capacity and Performance Study Report dated June 2010

Attachment 3 – Submission on Community Infrastructure Designation (CID) dated 9 June 2010

Yours sincerely,



Jack Connolly  
President, P.A.G.E.

## The Powerlink Revenue Reset Application 2012-17

Powerlink continually over-estimate the peak demand to justify their projects such as the Woolooga-Eerwah Vale now terminated project.

The table of projected peak demand analysis on page 9 extracted from Powerlink's annual network plans (2005-2011) shows that peak demand growth has been exaggerated by over 20%, and is inconsistent and inaccurate. This demonstrates that the peak demand forecasts from Powerlink are highly suspect and require a significant amount of independent scrutiny on a project-by-project basis. The analysis of peak demand is inconsistent and inaccurate from year to year with arbitrary nominations as to which peak demand was likely to exceed the line thermal limitations. This raises significant questions over the veracity of the detailed information provided by Powerlink and the associated conclusions that have been made based upon this data.

The peak demand forecasting process is not robust or consistent in its application. The thermal limitation driving the Woolooga to Eerwah Vale project has been consistently stated as 200MW. Powerlink's projections have repeatedly been weighted 5 years in advance of the actual peak demand growth resulting in the initiation of projects which are premature and costly with a consequent cost burden to the electricity consumer. In addition, this has resulted in wasted expenditure on investigation and regulatory compliance work.

From our observations of the RR Application, there are inaccuracies and misrepresentations within the proposal from Powerlink:

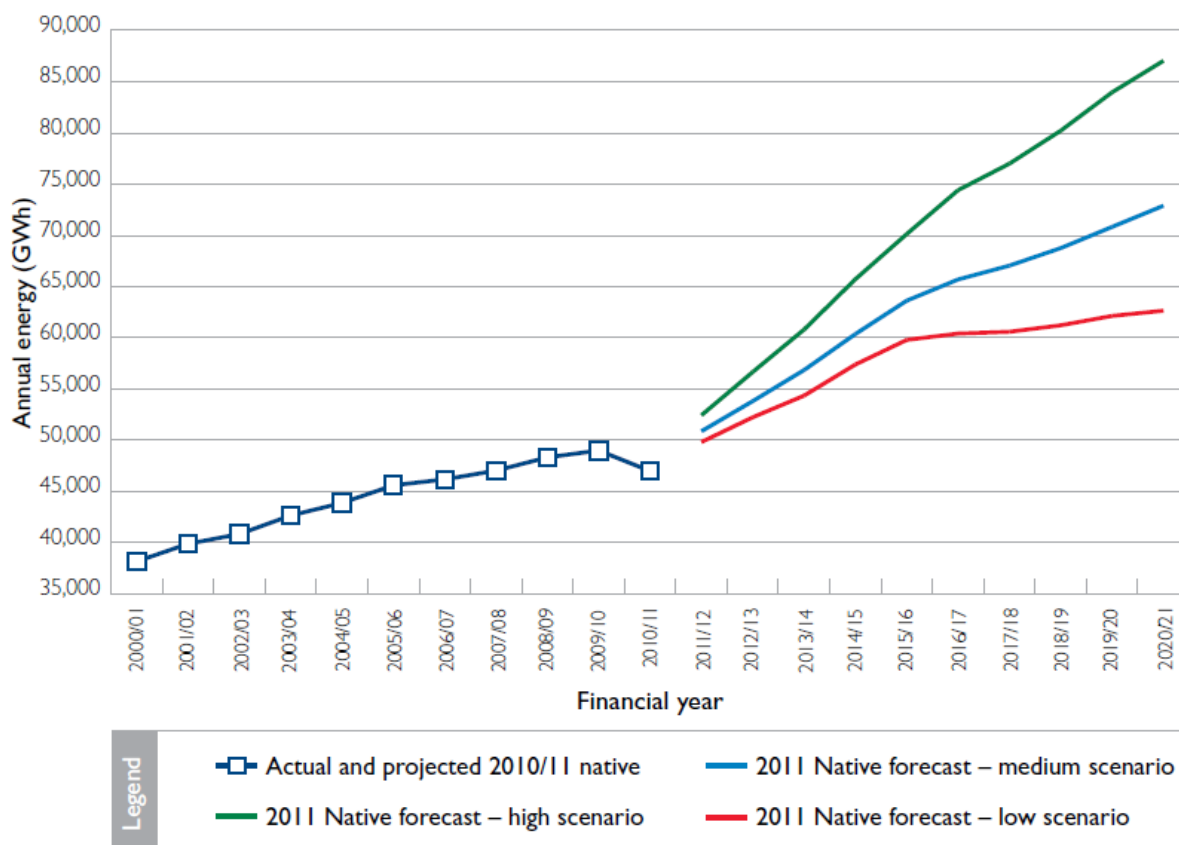
- The basis for Powerlink's cost estimates for individual projects is not discussed in detail. Therefore, cost estimates need to be independently reviewed to ensure the price elements are realistic, transparent and effective.
- Powerlink comments throughout its proposal on the "robustness" of its network and project planning processes. Examples are cited in this document to verify our concerns.
- There is also no discussion of the timing of individual projects, and whether these are optimum, or, if some could be cost effectively deferred. It is strongly suggested that the AER monitor Powerlink's extraordinary large Capex increases to evaluate the efficiency of Powerlink's individual projects.
- Powerlink's presentation of its price increases is misleading, deceptive and inaccurate.
- Powerlink's proposal deliberately diverts the reader's attention from its proposed price increases, by presenting its price impact in terms of **domestic retail price impacts**. As Powerlink's prices represent less than 10% of the retail price, this heavily dilutes its proposed price increases.
- Powerlink's annual network charges (\$/MWhr) are dependent on two factors – Powerlink's annual revenue, and the annual energy delivered (MWhrs). This is manifest in the over estimation of forecast demand which depresses the forecast network charge – actual network charges are in fact much higher when actual demand is below that forecast. This is misleading within their application.
- Powerlink is proposing that its revenue will approximately double over the next 6 years - from \$734M in 2010/11 to \$1.446bn in 2016/17.
- Powerlink does not discuss its assumed energy delivered (MWhrs) in its presentation of its price increases (although it claims to have submitted them to the AER on a "confidential basis"). However, Powerlink's suggested price path (Sections 1.10 and 11.5) is obviously assuming incredible energy consumption trends that would not be supported by most energy forecasters.
- According to Powerlink's 2011 Annual Planning Report, over the 5 year period from 2005/06 to 2010/11 the energy delivered by Powerlink's network will have increased by approximately 1.3%, i.e., an average growth rate of around 0.2% per annum. Despite this, Powerlink's Annual Planning report then projects that energy

consumption over the next 5 years will magically jump by 30% (approximately 5%/annum) - i.e., Powerlink is assuming an annual growth rate of over 25 times the average growth rate of the previous 5 years.

**An independent observer would clearly come to the conclusion that these forecasts are not credible or supported by the evidence presented.**

- As indicated by Garnaut in his recent update report, and can be confirmed by any independent energy analyst, over the past three years there has been a considerable deceleration in the growth of Australia's electricity consumption. Most analysts are projecting that energy consumption has plateaued and is now reducing. This is evident from the trends in Powerlink's own Annual Planning Report (see diagram below) which showed that its energy delivered dropped in 2010/11.

**Figure 2.7** Historic and forecast annual native energy for low, medium and high economic outlooks



The drop in energy demand is partly due to consumers moderating their electricity usage in response to higher prices, and also due to improved insulation and other energy efficiency measures, plus some contribution from the increased penetration of household solar PV systems. The continuing trend established here is not reflected in any of Powerlink's predictions.

- Based on the likely assumption that energy consumption remains at or near 2010/11 levels, then Powerlink's Transmission Use of System prices (TUOS charges) **will double** from \$15.88/MWhr to \$31.28/MWhr over the next 6 years. This would have to represent the highest proposed growth in transmission network charges in the NEM during this period.

As Powerlink is regulated via a revenue cap it doesn't face any 'volume risk' and so it can make grossly misleading and deceptive claims such as this without any fear of a reduction in revenue. Powerlink's revenue is fixed throughout the regulatory period, and so Powerlink's network charges (\$/MWhr) will simply be **very much higher** than Powerlink has presented in its proposal.

## Issues with the Proposed CapEx Spend

- Powerlink’s proposed CapEx of \$3,947 billion would result in Powerlink spending an approximate 1.5 times the average CapEx spend of the current period and approximately 4.6 times the average annual CapEx of the previous regulatory period. It is misleading to suggest that the proposed CapEx is “**following a similar trend to the current period**” when clearly it isn’t.
- Powerlink has struggled to spend the massive increase in CapEx allowance it secured for the current period. To date Powerlink is \$270M underspent. However, Powerlink is proposing to undergo a massive “catch up” in 2011/12 to ensure that it exceeds its regulatory allowance for the period. This does not demonstrate prudent management or deliver lowest cost energy to the end consumer.
- Powerlink is suggesting that it will spend almost \$800M in capital expenditure in 2011/12, which is around twice as much as it spent in the previous two years and almost twice as much as the regulatory allowance for the year. This massive spend is clearly not driven by needs, but is simply driven by attempting to spend the regulatory allowance and to increase its opening asset base for the next regulatory period.
- As per its previous regulatory proposals, Powerlink’s justification of its proposed augmentations focuses on “scenarios” that diverts attention from, and avoids transparent scrutiny of, the prudence and timing of the individual projects being proposed.
- Powerlink’s discussions on ‘peak demand’ growth focus on residential demand which only accounts for around 30% of its network load.
- Powerlink makes extensive use of “Powerlink data” as its reference data sources and makes limited use of public data – as such “Powerlink data” needs to be heavily scrutinized by the AER for validity.
- Powerlink’s proposal makes numerous exaggerated and irrelevant claims regarding the likelihood and impact of its generator connection augmentations (e.g., South –West Queensland Extensions). These developments are predominantly non-regulated, are paid for directly by generators and are irrelevant to Powerlink’s regulatory submission. In any case, most of the major developments are also in areas where Powerlink’s grid is already well established.
- As per the previous regulatory period, Powerlink’s proposed replacement Capex expenditure represents a replacement of over 20% of its regulated asset base over the next 5 years – a rate of over twice the underlying need.
- It is clear that alternatives to network augmentation (demand management and embedded generation), have not been considered by Powerlink, despite their obligations to do so.

### **Incomplete information presented in the proposal**

The proposal lacks some significant information required to properly assess its claims. Most of Powerlink’s claims are not transparent and are extremely difficult to assess due to the lack of information provided. An inordinate amount of key information has been provided to the AER on a “confidential basis”, clearly to avoid public/consumer scrutiny of the information and its underlying assumptions.

To ensure a fair and transparent public consultation process the AER must insist on this information being made publicly available, and should extend the public consultation period accordingly.

**PRICE INCREASES**

We note there are inconsistencies between Powerlink’s historical energy delivered figures in its Annual Reports and its Annual Planning report. It is also unclear what MWhrs it has assumed in its projected price path figures in section 11.5 (page 113) and Section 1.10 (pages 14-15).

Previous Regulatory Period

	<b>2001/02</b>	<b>2002/03</b>	<b>2003/04</b>	<b>2004/05</b>	<b>2005/06</b>	<b>2006/07</b>
Revenue \$m	346	367	391	427	488	531
MWhrs deliv	40297	41264	43270	44357	45609	46025
<b>\$ / MWhr</b>	<b>8.59</b>	<b>8.9</b>	<b>9.03</b>	<b>9.62</b>	<b>10.7</b>	<b>11.54</b>

Current Regulatory Period

	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>
Revenue \$m	561	634	693	734	815
MWhrs deliv	46125	47303	47720	46217	46217
<b>\$ / MWhr</b>	<b>12.16</b>	<b>13.4</b>	<b>14.52</b>	<b>15.88</b>	<b>17.63</b>

Proposal

	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>	<b>2016/17</b>
Revenue \$m	960.6	1064	11787.5	1305.3	1445.7
MWhrs deliv	46217	46217	46217	46217	46217
<b>\$ / MWhr</b>	<b>20.8</b>	<b>23.02</b>	<b>25.5</b>	<b>28.5</b>	<b>31.3</b>

Powerlink has assumed a significant future growth to support claims that its price increases are justified. From the annual plan 2011 the future growth figures are shown below, where energy growth leaps magically from **46,217** (2010-11) to **49,613** (2011-12) and continues to grow at similar rates. Figure 2.7 (page3) indicates this is not a realistic projection.

Comparison to actual growth rates illustrates small or no growth. The projections do not bear scrutiny even of the most limited kind.

Based on the assumption (See table above) that energy consumption remains at 2010/11 levels, then Powerlink’s prices (TUOS charges) will double from \$15.88/MWhr to \$31.3/MWhr over the next 6 years. This would have to represent the highest proposed growth in transmission network charges in the NEM during this period.

Extract from Powerlink’s Annual Network Plan 2011 is shown below:

The projection put forward in that table supposes the energy demand will leap from 46,217 MWhrs in 2010/11 to **64,427 MWhrs** in 2016/17. This is clearly against current trends and realistic projections. Using the inflated figures presented in this table as the basis for their predicted extra cost affect to the consumer in the coming period, does not portray the real impact of the costs to be incurred by their revenue request.

This needs to be critically taken into account and adjusted by the AER in this review.

Year	Far North	Ross	North	Central West	Gladstone	Wide Bay	South West	Bulli	Moreton	Gold Coast	Total
Actuals											
2000/01	1,457	2,962	2,055	2,876	8,697	1,187	1,659	14,754	2,531	38,179	
2001/02	1,536	2,971	2,219	3,069	8,948	1,257	1,717	15,515	2,663	39,896	
2002/03	1,549	2,934	2,296	3,109	9,098	1,256	1,738	16,149	2,721	40,850	
2003/04	1,631	3,095	2,397	3,174	9,285	1,327	1,828	16,984	2,942	42,662	
2004/05	1,673	3,010	2,542	3,269	9,452	1,419	1,943	17,548	3,034	43,890	
2005/06	1,745	2,937	2,571	3,363	9,707	1,468	2,092	18,472	3,253	45,609	
2006/07	1,770	3,087	2,733	3,163	9,945	1,461	2,047	18,470	3,225	45,900	
2007/08	1,818	3,191	2,728	3,165	10,058	1,399	1,712	87	18,683	3,283	46,125
2008/09	1,851	3,168	2,779	3,191	10,076	1,430	1,773	94	19,533	3,408	47,303
2009/10	1,836	3,316	2,719	3,300	10,173	1,427	1,761	84	19,628	3,476	47,720
Projected 2010/11	1,834	3,158	2,652	3,145	10,135	1,290	1,774	85	18,752	3,391	46,217
Forecasts											
2011/12	1,979	3,378	2,839	3,370	10,482	1,383	1,788	90	20,476	3,828	49,613
2012/13	1,984	3,454	3,347	3,605	10,835	1,366	2,322	366	21,386	3,884	52,552
2013/14	2,025	3,504	4,141	3,734	11,020	1,375	2,990	690	22,126	3,981	55,586
2014/15	2,075	3,569	4,512	3,914	11,136	1,399	4,381	1,173	22,874	4,072	59,104
2015/16	2,135	3,648	5,035	4,013	11,348	1,428	5,467	1,388	23,727	4,172	62,361
2016/17	2,225	3,762	5,230	4,167	11,411	1,474	5,783	1,471	24,680	4,224	64,427
2017/18	2,271	3,817	5,492	4,348	11,473	1,491	5,559	1,517	25,477	4,336	65,781
2018/19	2,345	3,909	5,741	4,471	11,543	1,529	5,706	1,548	26,255	4,444	67,492
2019/20	2,446	4,038	5,909	4,649	11,644	1,576	5,758	1,579	27,346	4,614	69,560
2020/21	2,548	4,167	6,077	4,827	11,744	1,624	5,811	1,610	28,437	4,784	71,628

## **Specific Conduct of Project Presentation and Implementation**

The following are specific issues relating to the manner in which projects are presented by Powerlink for approval through the Revenue Reset Application process. PAGE comments in detail on the now terminated Woolooga to Eerwah Vale Transmission Line and Substation project.

For the 2007 to 2012 revenue period, several potential Powerlink Qld projects were examined by the AER. Parsons Brinckerhoff provided some of the earlier work towards this process. In particular, PAGE would like to provide additional information on the project - Woolooga to North Coast 275 kV Double Circuit Transmission Line and 275/132 kV transformer – CP.01264/A. – which was examined as part of the previous regulatory test application process.

This is 'of importance', as Powerlink vigorously challenged the Parsons Brinckerhoff reports to the AER as to the need and scope of an augmentation to suitably address a developing N-1 limitation on the Energex network supplying Gympie and the north Sunshine Coast region.

Originally this project under the 2007-12 revenue period was approved to have a NPV of approximately \$67m. This NPV escalated significantly to \$113m at the conclusion of the EIS process. PAGE presented alternative solutions supported by an independent network consultant that **saves over \$70m NPV when compared to Powerlink's preferred network augmentation proposal** and provides for reliable energy supply for the Northern Sunshine Coast and meets community expectations and has significantly lower environmental impacts.

The termination of the Woolooga to Eerwah Vale 275kv Powerline and Substation project on the basis of altered power flows due to excess coal seam gas generation in the South West (Surat Basin) is seen as a face saving excuse by Powerlink, to avoid the open analysis of both their CID application and the PAGE alternative, as agreed to by the Minister's Energy Sector Monitoring Unit (ESMU) department on May 10, 2011.

The prospect of a precedent to have the ESMU scrutiny, as well as the countering all the PAGE benefits with Powerlink's apparent "can't do" responses, surely has incurred the loss of several million dollars during the EIS and CID processes (4 years plus), which appears to be preferable to being challenged with a transparent analysis of their project. Under intense community and media pressure as to the transparency and accuracy of their EIS and CID processes for this particular project, Powerlink has terminated the project, but is set to revisit this in this next revenue period as noted in the Powerlink APR document 2011.

### **Demand Drivers for the Project**

The information in the 2011 Powerlink APR, has been prepared by Powerlink to show the current 2011 network situation, and yet clearly shows that the 132kv Energex lines supplying Gympie and the North Sunshine Coast from the Woolooga connection point do not benefit.

The data in the chart on page 9 shows the 200MW<sup>1</sup> N-1 network limitation on the Woolooga supply point to Gympie and North Sunshine Coast remains, despite the supposed extra supply from the Surat Basin being touted as deferring the "need" until about 2019. The coloured portion of the table shows the Woolooga to Gympie lines will continue to overload from 2015/16, noting of course that ongoing effects of the GFC and previously noted slowing of energy demand which will lower the actual consumption and peak load. However, the issue here in this document is that Powerlink still predict a load in excess of their previously nominated N-1 maximum capacity of the lines.

The normal "southwards", "free flowing interconnected network" as specified by Powerlink precludes allowing power flows northwards past Image Flat back up to the Cooroy substation on the existing network configuration even under an N-1 condition.

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<sup>1</sup> From Powerlink Woolooga- Eerwah Vale EIS, App G, Page 12.

**“It is incomprehensible from a system strategic assessment as to why the proposed 275kV injection with 800MW capacity would be fed into a 132kV bottle neck which is the 132kV system between Woolooga to Palmwoods given that the 132kV system limits the flows out of the 132kV system to the wider Sunshine coast area to 200MW in its present and proposed configuration, while the wider sunshine coast area is seen to be the area which demands the new additional supply capacity.”** Performance Electrics – Study Report on the Woolooga to Palmwoods 132kV Sunshine Coast Power System Capacity and Performance, June 2010

However, the first stage of the PAGE alternative provides a suggested solution of installing a 132kv bus circuit breaker at the Gympie Substation, allowing supply from Palmwoods northwards to support the network shortfall during an N-1 contingency on the Woolooga lines. The viability and feasibility of this proposal has been verified by the independent network consultant.

One likely explanation for the sudden ability to defer the project despite the apparent ongoing network overload potential when one Woolooga line fails is the actual implementation by Energex of this first stage of the PAGE proposal, or a variation thereof. In either case the existing network can be made to support itself even under an N-1 event on the Woolooga to Gympie 132kV lines until potentially 2027<sup>2</sup>, not just 2019 as claimed by Powerlink. The slowing of the economy due to the effects of the GFC also means that this 2027 projected date could extend out beyond 2027.

Alternatively, the table developed from Powerlink’s APR shows that the Powerlink projections for the Woolooga to Gympie Energex lines are consistently weighted by an excess 5 years load growth, which has never been adjusted to accurately reflect the current or more appropriate situation. This is approximately a 20% exaggeration (as noted above) of the actual and forecast loads. This provides a more realistic explanation for the 5 year deferral now stated by Powerlink.

Nevertheless, the PAGE alternative addresses and solves the short term and longer term issues for the Gympie and North Sunshine Coast areas without establishing a substation south of Cooroy, simply by taking into account other planned developments, ignored by Powerlink in their considerations, i.e., the Energex SunCoast Power Project to Pacific Paradise and the planned linking of this project to the Sunrise Hills substation.

The issue with installing a new 275kv substation south of Cooroy is that it does not permanently solve the N-1 limitations on the existing 132kV Energex lines supplying the Gympie area, even after the North Sunshine Coast load is removed from those Woolooga to Gympie 132kv lines.

Given that better, more complete, and cost effective solutions for the end consumer are possible without the significant environmental destruction to the World Heritage listed Noosa Biosphere habitat and iconic Sunshine Coast tourism industry – a cost for future generations, ignored by Powerlink in their assessments.

This evidence illustrates that the project, as approved in the 2007-12 revenue application, was **driven by inflated demand forecasts**, should never have been commenced or approval sought for an unnecessary project given the revenue planning horizon, and has resulted in significant waste of funds in the assessments completed to date and impact on the local community. The viable alternative proposed by PAGE **saves the consumer \$70m NPV** over the Powerlink preferred option, and has not been assessed by Powerlink in any meaningful manner to date.

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<sup>2</sup> Attachment 2 – Perf Electrics Woolooga To Palmwoods 132KV Sunshine Coast Power System Capacity And Performance Study Report



**Forecast Load flow from Woolooga to Gympie as per Powerlink Annual Planning Reports. (APR) 2005 to 2011.**

APR.	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
2005	169.3	176.9	184.4	193.3	201.1	210.3	213.5	223.7	240.1	251.1						
2006		173.6	184.9	193.7	200.8	209.0	217.6	226.2	235.3	246.1	257.0					
2007			168.1	175.3	180.3	189.4	197.2	206.5	215.7	225.9	236.3	246.8				
2008				173.4	180.7	182.9	191.4	199.6	207.7	218.6	227.9	239.0	250.6			
2009					166.4	164.2	177.0	187.0	197.6	204.8	214.8	223.9	232.2	239.5		
2010						193.0	193.8	194.6	200.7	206.3	211.6	224.3	240.8	252.6	264.4	
2011							181.0	189.9	198.2	200.4	207.7	214.5	219.8	225.4	233.8	242.2

Powerlink Annual Planning Report - [Forecasts](#) of [connection point native demands](#) (MW) coincident with state summer maximum demand.

**From Powerlink EIS, App G, Page 12.**

“The existing electricity bulk supply network supplying the Sunshine Coast and Gympie areas has a maximum supply capacity of around 1000 MW.

**The 132kV double circuit line from Woolooga Substation to Gympie has a firm supply capacity of 200 MW,** and the 275kV double circuit line supplying Palmwoods Substation has a firm supply capacity of just below 800 MW.”

**2005 APR Page 77** Supply to Sunshine Coast Area - Load growth may result in thermal limitations in Energex’s 132kV network between Woolooga and Gympie during a critical 275kV or 132kV outage. --> **2008-2009 – 193.3MW**

**2006 APR Page 80** Supply to Sunshine Coast Area - Demand growth may result in thermal limitations in Energex’s 132kV network between Woolooga and Gympie during a critical 275kV or 132kV outage, following Energex minor upgrade works → **2010/11 – 209MW**

**2007 APR Page 83** Northern Sunshine Coast Area - Demand growth may result in thermal limitations in ENERGEX’s 132kV network between Woolooga and Gympie during a critical 275kV or 132kV Outage → **2011/12 – 197.2MW**

**2008 APR Page 86** Northern Sunshine Coast area - Demand growth expected to result in thermal limitations in ENERGEX’s 132kV network between Woolooga and Gympie during a critical 275kV or 132kV outage → **2014/15 (5) – 218.6MW** (error?!)

**2009 APR Page 75** Northern Sunshine Coast area - Demand growth expected to result in thermal limitations in ENERGEX 132kV network between Woolooga and Gympie during a critical 275kV or 132kV outage → **2014/15 (5) – 204.8MW**

**2010 APR Page 73** Supply to northern Sunshine Coast area - Demand growth expected to result in thermal limitations in the ENERGEX 132kV network between Woolooga and Gympie under contingency conditions → **2014/15 – 206.3MW**

**2011 APR Page 73** Supply to northern Sunshine Coast area - Load growth is forecast to result in thermal limitations in the Palmwoods 275/132kV transformers under contingency conditions. → **2015/16**

Load growth is forecast to result in thermal limitations in the ENERGEX 132kV network between Woolooga and Gympie under contingency conditions. → **2019 (4) – 225.4MW**

***How is the sudden increase in line capability to 225.4MW justified, after all the previous years’ indicate approximately 200MW as the limitation?***

***This has serious implications on the veracity and accuracy of Powerlink projections and augmentation planning of the Woolooga to Eerwah Vale project.***

***By extension, this calls into question the energy demand forecasts used as the basis to promote and support other network augmentation projects proposed and developed by Powerlink.***

**Attachment 1**

**Issues with the**  
**Powerlink Woolooga to Eerwah Vale**  
**Project Proposal**

### **Issues identified with the Powerlink proposal.**

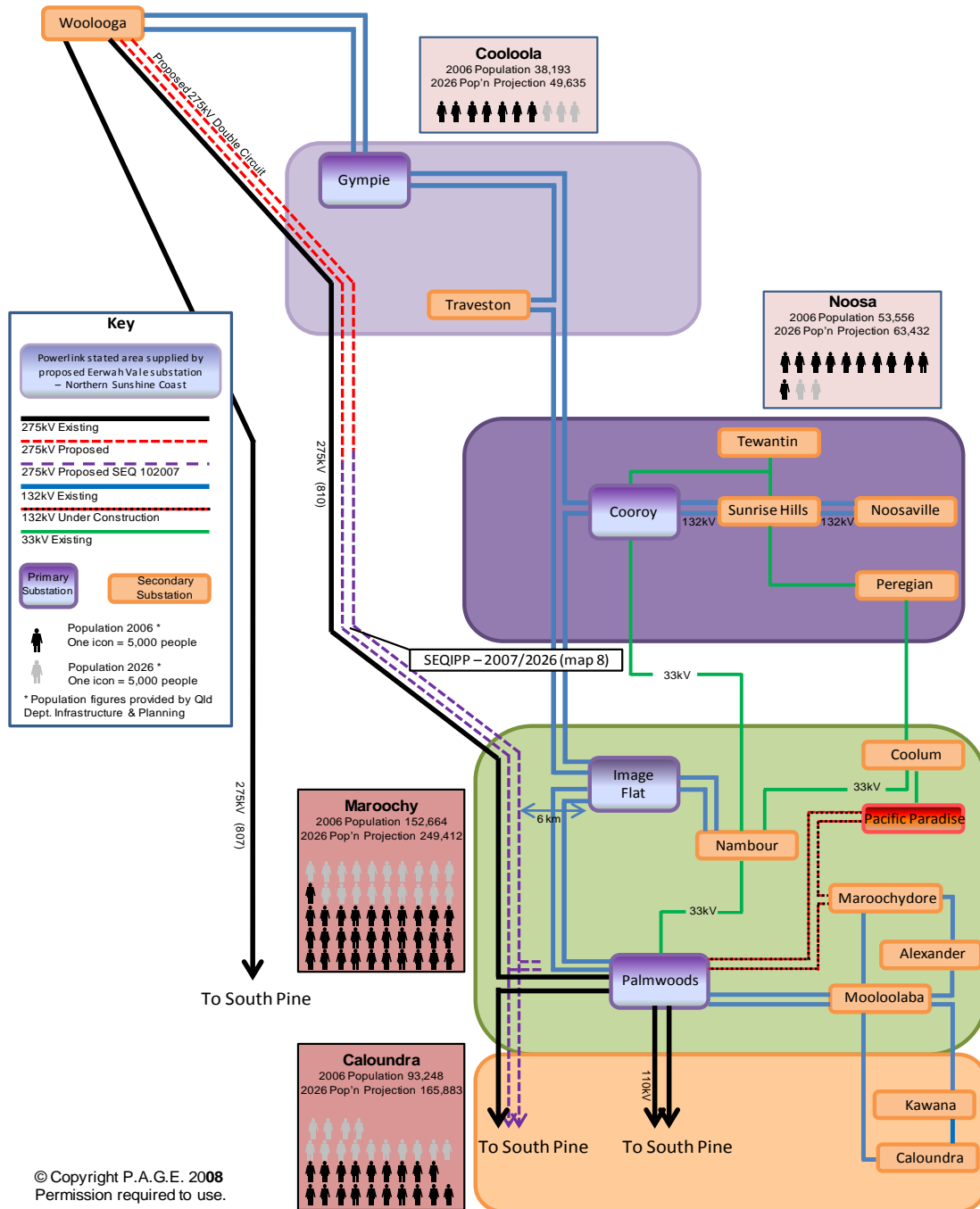
1. The original 2007/08 N-1 limitation on the Woolooga to Gympie lines remains as the Powerlink proposal at Eerwah Vale does not provide 'direct' additional capacity to the Gympie load.
2. Data and projections used by Powerlink are out of date, and are not consistent with emerging population growth patterns – and government requirements – for the 3 areas (Sunshine Coast, North Sunshine Coast and notably Gympie as the Gateway to the Sunshine Coast).
3. The short term 2007/8 issue on the Woolooga to Gympie 132kV lines re-emerges in the study period (2007/08 to 2051/52) as shown by Powerlink's own data (Appendix G)
4. Addressing that issue then (circa 2030) has added impacts to dealing with it properly now, due to increased population at that time adjacent to the line etc. Either a new 132kV line from Woolooga to Gympie or an extra 275/132kV Substation adjacent to Gympie is likely to be a consequence despite Powerlink indicating otherwise in the discussions to the AER (the previous reset applications 2007 – 2012).
5. Addressing this issue would add extra costs to the proposed Powerlink solution, which are not acknowledged, affecting the least cost NPV analysis and regulatory issues within the term of the solution – 2007 to 2051/52.
6. Unnecessary high impact on significant environment and koala habitat areas through Ridgewood and Eerwah Vale, when other options utilizing existing infrastructure corridors are more feasible, viable and less impacting, as well as addressing the current limitations and future development more successfully.
7. Major Energex works planned on the North Sunshine Coast have not been considered in the overall assessment. These works alter the need for major Powerlink 275kV development to the North Sunshine Coast, allowing the option of providing a single/double circuit 132kV line from Woolooga to Gympie solving both the short term and long term N-1 limitation to Gympie.
8. Powerlink's EIS underestimates the need for augmentation to the Palmwoods substation within the study period (2007/08 to 2051/52) as this is the supply source for all the proposed Queensland Government's 'greenfield' projects on the Sunshine Coast. Palmwoods will need 275kV reliability augmentation. (see map next page)
9. These issues as well as the huge \$123 million expense of the Powerlink proposal can be avoided without the need for the highly controversial and damaging 275kV easement and powerline through Ridgewood and Eerwah Vale, if the recommendations of the independent electrical engineering consultant engaged by PAGE are assessed and implemented.
10. The additional expenditure of a low \$1.5 million (estimated) as suggested as part of the Energex network upgrading noted in the EIS should be adopted, cancelling the need for the major 275kV injection through Ridgewood and Eerwah Vale as was proposed.

The follow-on recommendation by the independent electrical engineering consultant addresses the actual long term requirement for the Palmwoods substation to be reinforced. Several EIS respondents also noted this for Powerlink in the May 2009 responses. Assessing and adopting the recommendation for the Gympie switching circuit breaker will allow time for the energy growth issues to properly be re-assessed and the optimum prudent investment made at the appropriate time. (The 275kV supply to the Sunshine Coast, Caloundra, and Palmwoods substation load areas may even be sourced from the closer South Pine Substation as an extension of current developments from the South Western Queensland area.)

# P.A.G.E's Alternative

## Sunshine Coast Transmission & Distribution Network

General Representation for Discussion Purposes only



This diagram shows 1. ABS 2006 population projections for future growth (and resulting energy load) is expected in the areas supplied from the Palmwoods substation, with a low growth pattern in the area supplied by the Gympie-Cooroy-Sunrise Hills 132kV Energex lines. (White icon reps 5000 future population each, viz. Noosa – 10,000 to 2026; Balance Sunshine Coast – 165,000 to 2026 also being increased further by Qld Government Greenfield programs for the Maroochy and Caloundra areas.)

2. While injecting south of Cooroy can supply some flow on benefit, the existing network has limited distribution capability to support Palmwoods substation effectively in the long term

3. The north Sunshine Coast area serviced presently by Cooroy to Sunrise Hills will be augmented with linking the Energex planned and designated new Pacific Paradise 132kV substation, further supporting load at present supplied from Woolooga.

Combining the 'areas' of Gympie and North Sunshine Coast areas into one as the basis for the entire project misleads the study into assuming that the previously proposed 275kV injection south of Cooroy would meet the forecast limitations and needs on the Energex network to 2052/53. This is shown to be not the case. The figures below define the North Sunshine Coast as properly a separate area, distinct from the Gympie area.

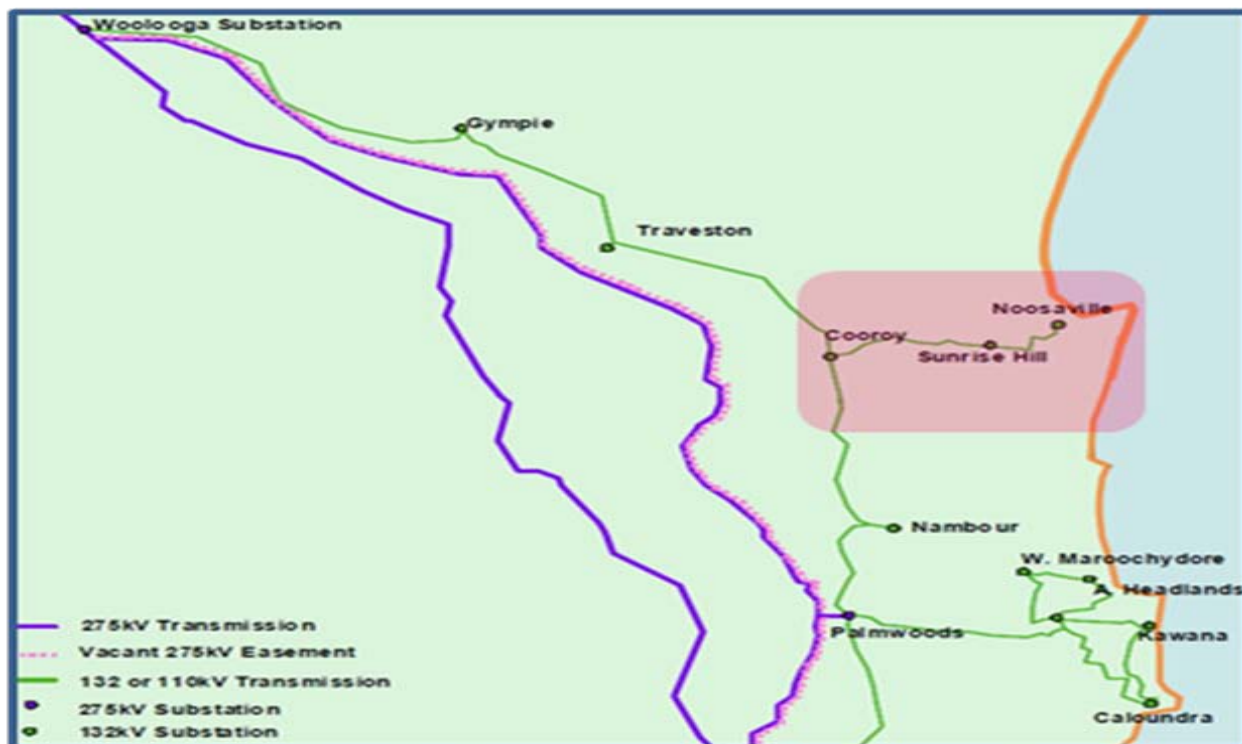


Figure 1-3: Existing electricity supply network for the Gympie and Sunshine Coast areas

The defining of the North Sunshine Coast area as supplied via the Gympie to Cooroy 132kV lines and the Cooroy to Sunrise Hills 132kV lines as *the area of shading in the map above* is confirmed by the population table in Appendix G page 9 of the EIS. 73,781 is indeed the approximate population of the Noosa load area plus Peregrine area and the part of the Coolumb area presently supplied by the Woolooga to Gympie 132 kV lines. (see table below).

### Sunshine Coast Portion of the Area

5 Year Period	Department of Infrastructure Projection		Extrapolation	
	Population	Growth rate	Population	Growth rate
2006/07 to 2011/12	73,781 to 84,916	2.9%		
2011/12 to 2016/17	84,916 to 95,365	2.3%		
2016/17 to 2021/22	95,365 to 105,336	2.0%		
2021/22 to 2026/27	105,336 to 115,216	1.8%		
2026/27 to 2031/32	115,216 to 125,295	1.7%		
2031/32 to 2036/37			125,295 to 135,479	1.6%
2036/37 to 2041/42			135,479 to 145,771	1.5%
2041/42 to 2046/47			145,771 to 156,073	1.4%
2046/47 to 2051/52			156,073 to 166,282	1.3%

**Table 2-1: Forecast electricity demand for the Sunshine Coast and Gympie areas**

Area	Existing demand summer 2007/08 (MW)	Forecast demand summer 2016/17 (MW)	Average annual growth rate (%)
North Sunshine Coast and Gympie area 10-year forecast	188	269	4.1
Sunshine Coast and Gympie area 10-year forecast	487	778	5.3

Note: The north Sunshine Coast and Gympie area 10-year forecast is a subset of the Sunshine Coast and Gympie area 10-year forecast and needs to be considered separately, because that area forecast has most impact in relation to the initial network augmentation trigger, that is, the loading on the Woolooga to Gympie transmission lines is the initial emerging network limitation.

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While the Powerlink tables from the EIS note the two areas of 1. The greater Sunshine Coast plus Gympie area and 2. The north Sunshine Coast plus Gympie area have distinct separate population growth projections and “*needs to be considered separately*”, a more transparent approach by Powerlink would have applied that same analysis need the to north Sunshine Coast and Gympie area by separating the two areas of 1. Gympie and 2. North Sunshine Coast.

Table 2 from Appendix G on page 6 shows the main components of 188 MW existing 2007/08 demand for north Sunshine Coast and Gympie area is Gympie - 70MW and the north Sunshine Coast via Cooroy to the Sunrise Hills and Noosville 132kV substations – 100MW.

This then allows the actual present and projected Energy requirements for the north Sunshine Coast to be more accurately developed and prudently assessed.

**Table 2-1.P.**

**Forecast Electricity Load for North Sunshine Coast, Sunshine Coast, Gympie Areas Considered Separately**

Area	Existing demand Summer 2007/08 MW	Forecast demand summer 2016/17 MW	Forecast Demand Summer 2026/27 MW	Forecast Demand Summer 2031/32 MW	Forecast Demand Summer 2036/37 MW	Forecast demand summer 2046/47 MW	Forecast demand Summer 2051/52 *
<b>Nth Sunshine Coast. Cooroy to Sunrise Hills Area **</b>	<b>100</b>	<b>143</b>	<b>180</b>	<b>199</b>	<b>222*</b>	<b>261</b>	<b>281</b>
<b>Demand Increase</b>		<b>43</b>	<b>37→ 80</b>	<b>19→ 99</b>	<b>23→122</b>	<b>39→161</b>	<b>20→181</b>
<b>Time Period</b>	Now	10yr	20yr	25yr	30yr	40yr	45yr
<b>Nth Sunshine Coast and Gympie area combined</b>	<b>188</b>	<b>269</b>	<b>310</b>	<b>342</b>	<b>441*</b>	<b>519</b>	<b>558</b>
<b>Sunshine Coast and Gympie area combined</b>	<b>487</b>	<b>778</b>	<b>1008</b>	<b>1123</b>	<b>1235</b>	<b>1461</b>	<b>1575</b>

\*\* Calculated from Table 3, Page 9, app G, draft EIS, using % rates therein.

\*\* Using the nominated 10 year forecast % rate even though the area has lower population growth rates than acknowledged therein.

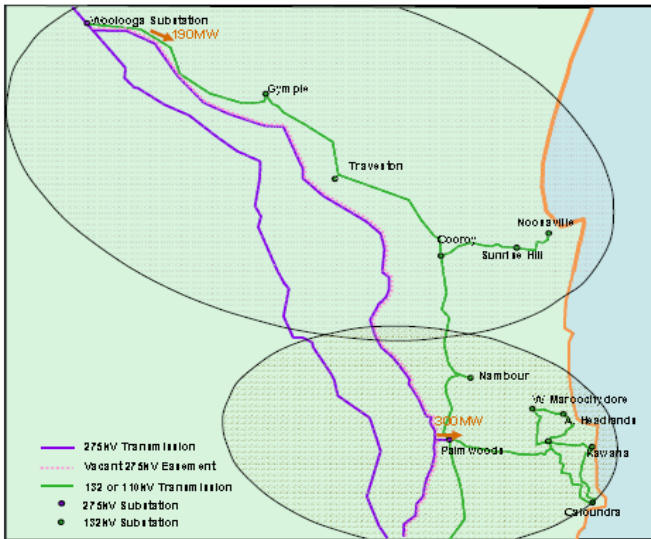
From the above additional detail for the Powerlink table, the (2007/08) North Sunshine Coast 100MW load increases by **99MW over the 25 year period to 2031/32**, based on the actual Energex network supplying the North Sunshine Coast area identified above and the rates assumed by Powerlink for the original table in chapter 2 of the EIS. Even the growth for the entire 45 year study period to 2052 in the actual specific serviced area is shown to be only an additional **181MW**.

Given the potential additional **1000MW** capability of the new substation, it is apparent that this is significant over design and expense to what is reasonably necessary.

The incongruity is further highlighted when other Energex developments are included in the analysis, eg.:

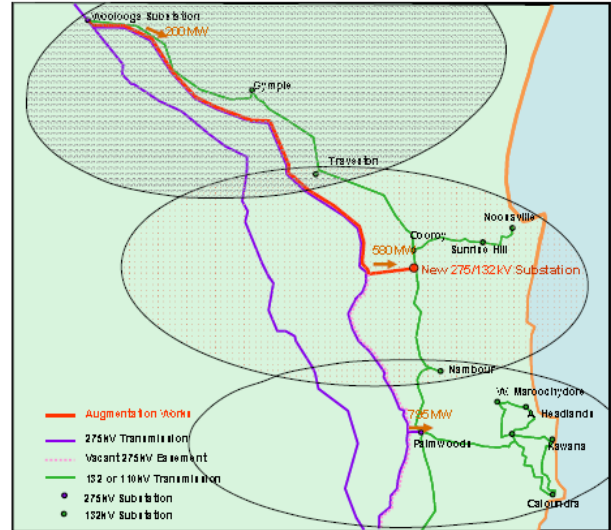
1. Transfer some of the Cooloolm load to the new designated Pacific Paradise substation.
2. Proposed future 132kV linking of Sunrise Hills substation and the Pacific Paradise, and
3. The Global Financial Crisis (GFC) will continue the trend to slowing energy needs even below the previous projections.

Taking this into account then, the environmental destruction to the Ridge-wood Eerwah Vale koala can be avoided by implementing the correct strategic and prudent long term solution.



**2007/08 Transmission Flows**

**2007/08 Woolooga to Gympie flow – 190 MW**



**2052/53 Transmission Flows**

**2052/53 Woolooga to Gympie – 200MW**

The flow charts presented by Powerlink in Appendix G of the EIS to justify the high costs and impacts of their proposed Woolooga to North Coast ( Eerwah Vale) project as ‘necessary’ , actually show that the project design has not been properly assessed.

The two diagrams above from Powerlink’s own EIS App G clearly shows the initial N-1 limitation trigger -190 MW in 2007/08 - on the Woolooga lines re-emerging during the study period - 200 MW by 2052/53 - even under the low growth scenario presented. The other diagrams included in the EIS show this may occur in the 2030’s, well within the study period.

Combining the potential solution for the initial over-load under the N-1 issue for the Woolooga to Gympie lines, with supplying more energy to the North Sunshine Coast area misleads the reader, as to the most suitable solution for these two separate areas.

Positioning the new North Coast sub-station south of Cooroy does not address adequately ‘**the particular constraint that triggers the project need**’ in the ‘long term’ and as such is neither a strategic nor economic solution that complies with regulatory frameworks and expectations.

## History – 2007 – 2012 Reset.

Quoting Parsons Brinckerhoff / Powerlink Revenue Reset Review of Capital Expenditure, Operating and Maintenance Expenditure and Service Standards P: 158408/Final Report Rev **Woolooga to North Coast 275 kV Double Circuit Transmission Line and 275/132 kV transformer – CP.01264/A** :-

“Powerlink and Energex have considered four network alternatives including operating the line at 132 kV, or development at 132 kV and have presented considerable supporting evidence for the development of a high capacity 275 kV line. While Powerlink and Energex **could have presented the economic NPV analysis in a more transparent and detailed manner**, we consider the approach taken was reasonable.

“Regarding the assessment outcome, we note that Powerlink and Energex are proposing to establish 275 kV lines all the way to North Coast (70 km) where it appears that development to Gympie (~30 km) would sufficiently resolve the forecast reliability constraints. While we appreciate that North Coast is a more central and strategic injection point to the region, **the development at this location does not appear efficient in the short term and based on the particular constraint that triggers the project need**. On this basis we recommend Powerlink’s proposed capex be adjusted, as per Table H.10 to accommodate the development of a 275 kV double circuit line to Gympie rather than North Coast, and installation of the transformer at this site. **This staged approach to development would allow the remaining section of 275 kV between Gympie and North Coast to be developed later, as economically and technically required.**” [end quote]

Review of data in Powerlink’s EIS document for the above-discussed project shows that developing the proposed North Coast substation south of Cooroy at Eerwah Vale is indeed not an efficient option for the long term. As Parsons Brinckerhoff point out in their initial report – **“based on the particular constraint that triggers the project need”**, Powerlink’s long term solution for the short term constraint does solve the limitation in the long term.

The tables above from Appendix G, show that even under low growth scenarios it is ‘foreseeable’ that the initial limitation (190 MW transmission flows) Powerlink indicates triggers the project in 2007/08, will reoccur before the end of the study period 2052/53, (200MW transmission flows), resulting in the need to further augment supply Woolooga to Gympie within the period nominated, despite the (incorrect) assertions by Powerlink that their solution is more efficient and has the better NPV over the long term analysis. Either another 132kV line or a second Substation at Gympie with the associated impacts and costs will be additionally required, under their proposal.



Note also the Parsons Brinckerhoff information regarding Powerlink's NPV analysis of the alternatives presented for the 2007 / 2012 Reset:-

## **POWERLINK REVENUE RESET**

### **Response on Selected Issues in Powerlink's Submission**

159270 Issues Response 130607 v3.doc

*June 2007*

*Page*

“With respect to the discussion regarding the Woorooga-North Coast project, our considerations of the predominantly new information provided by Powerlink is similar to that for the Strathmore-Ross project. Our option has an NPV that is only marginally lower than that of Powerlink's preferred option. However:

- The deferral of 6 years for the second stage of augmentation has not been verified through detailed investigation;
- The costs and scope of each stage of works have not been investigated (in particular the need for double circuit towers strung on both sides for both stages of PB's option)

Without considering any other changes to the economic assessment such as network losses or environmental impacts, we highlight that the NPV analysis results presented by Powerlink are highly sensitive to the discount factor used and the timing of investment, and the selection of the preferred option **can be reversed by simply increasing the interest rate from 7% to 9% and deferring the second stage of works by an additional year**.” [end quote].

It is to be noted that:

1. Powerlink have indeed used a 9% discount rate for the NPV analysis in the EIS for the project, and
2. The Parsons Brinckerhoff inquiry relating to the unverified timing of just 6 years deferral for the 2<sup>nd</sup> stage has been justified with Powerlink now deferring the entire project in this current annual planning report (2011), a further 3 years to 2019, effectively making a deferral period of 7- 9 years reasonable, (proven with hindsight).

Even now the nominated '2019' may also be premature given other ongoing developments with major investment planned and requested by Powerlink, improving the supply network from SW Qld to Southern Qld.

PAGE believes greater detail should be sought by the AER from Powerlink to confirm the benefits of the extra SW Qld generation benefits for the Southern Queensland zone and to be transparent in explaining why this extra generation will only give a 5 year benefit to the Gympie and North Sunshine coast area, when obviously the infrastructure being proposed / requested is for long term supply beyond 5 years.

## Conclusions

Given the above facts, a transparent evaluation would have resulted in a more strategic proposed augmentation to the Gympie.

The PAGE alternative to Powerlink's Woolooga to North Coast project is a technically feasible and viable option that addresses both the short term limitations and the longer term requirements for the Gympie and North Sunshine Coast areas without compromising other future needs.

The PAGE alternative also solves the issues of, and meets, regulatory and economic framework requirements with a superior Net Present Value savings of \$70m .

It is the opinion of PAGE that the AER should ensure that Powerlink be required to provide a true transparent process , and there is an adequate, detailed scrutiny of augmentation proposals submitted by monopolies for the ultimate benefit of the electricity consumer.

Moreover, cost estimates need to be independently reviewed to ensure the prices are realistic and that the timing and needs of the project are both prudent and effective.