PO Box 704
WATERFORD
QLD. 4133

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Committee Secretary
Senate Standing Committees on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600

Phone: +61 2 6277 3526
Fax: +61 2 6277 5818

Sent by email to: **ec.sen@aph.gov.au**

Senate Inquiry into electricity network companies

Submission prepared by:

Paul Casbolt
(m: 0428 325 275)

for

VETO Energex Towers Organisation

VETO SUBMISSION

1. *Introduction*

VETO (Veto Energex Towers Organisation, www.VETO.org.au) is a community organization that was formed in 2008 by Logan community residents in response to an Energex proposal to construct a second 110kV sub-transmission powerline line from Loganlea to Jimboomba (shown in Figure 1 as Option 2 in Green).

This 23 km powerline is proposed to follow the Logan River with a 40 metre cleared easement through our community across 90 rural residential properties and along the Logan River bioregional corridor with 5 crossings of the Logan River within 6.5 kilometres.

VETO opposes this Energex proposal because it will turn the already fragile Logan River valley into a powerline easement, clear Logan koala habitat, directly impact 90 rural residential landowners and destroy the amenity of the historic township of Logan village.

VETO welcomes this opportunity to provide this submission to the Environment and Communications References Committee for the Senate Inquiry into electricity network companies. This submission is based on our experience with Energex since December 2008, when we were first told by Energex that they would build this duplicate high voltage powerline through our community.

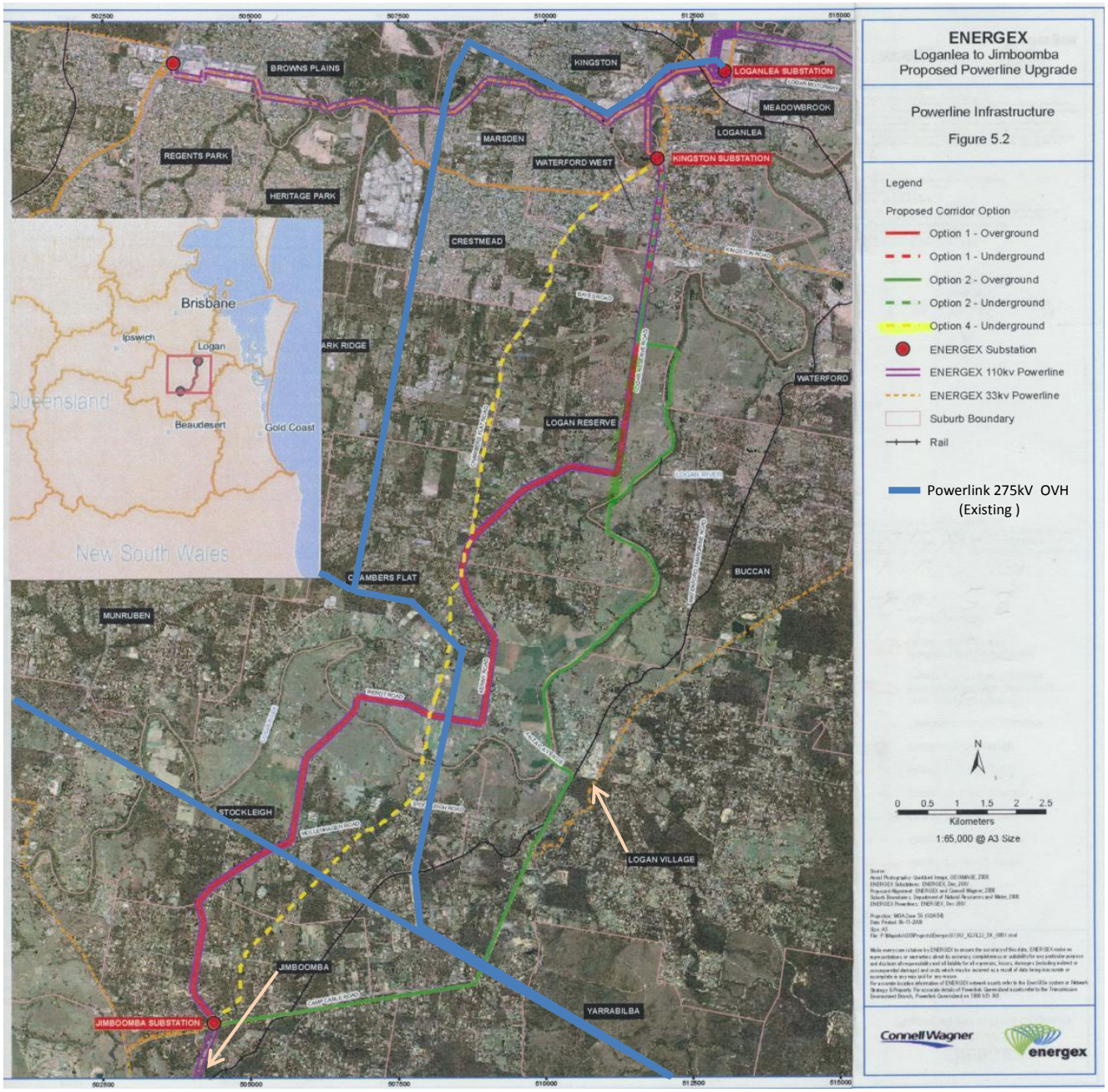

Figure 1 - Proposed second Loganlea to Jimboomba 110kV powerline (in green) and Existing powerline (in red)
(source: Corridor Selection Report prepared by Aurecon (previously Connell Wagner) for Energex 13Nov 2008[1])

2. Background

In December2008, Energex informed Directly Affected Landowners that they intended to build a 23 km 110kV power line from Loganlea to Jimboomba along the Logan River. Energex claimed this second Loganlea to Jimboomba 110kV powerline was required to provide N-1 security for the existing F820 powerline and deliver additional security and reliability for electricity supply to the broader Mt Lindesay and northern Beaudesert area.

Our community and Logan City Council strongly objected to this proposal because of the high impacts this powerline route and 40 metre cleared easement would have on the rural residential properties it crosses, the 42.5 ha of koala habitat clearing required[2] and the multiple Logan River crossings proposed.

Energex conducted Community Consultation sessions where Energex staff said they were there to tell us what they would do, not to consider alternatives as the route had been selected in the Corridor Selection Report[1] (CSR) based on scoring by Energex and Aurecon in an in-house workshop. Our Community considered this consultation to be a sham, where Energex pushed their pre-determined outcome and trivialised community issues.

In 2010 responding to community protest, Energex modified the route to remove two Logan River crossings at the northern end and relocate the powerline off 24 rural residential properties by extending the underground section along Logan Reserve Road for a further 3.5kms. This was described by Energex as a unique opportunity, where replacing the "complex overhead" (Energex description) along the Logan River with underground along roads, was claimed to reduce the expected compensation costs and deliver a net saving of $100,000[3].

Logan City Council (LCC) engaged Cardno (Qld) Pty Ltd in 2010 to review documentation for the proposed Loganlea to Jimboomba 110kV powerline. Cardno assessed the Energex Corridor Selection Report (CSR) and stated[4] that the Energex methodology "*is flawed*" and "*selection of Option 2 (Logan River route) is the least preferred option Overall on both Social and Environmental aspects*." plus "*Alternative options, not considered by Energex for the required augmentation of electricity supply and distribution infrastructure identified by Council would have less environmental impact than any of the options considered by Energex*."

Cardno also highlighted there were no costings in the CSR to justify the economic comparison and Energex had not considered the option of a local 275/110kV substation fed from the Powerlink Greenbank to Gold Coast 275kV transmission lines which are located within 4kms north of the Energex Jimboomba substation.

Cardno showed inconsistencies in the Energex costings, NPV assessments, growth forecasts and concluded "*that the proposed new 110kV line will not fully meet N-1 limitation requirements and will not provide a significant increase of capacity to the region*."[5]

In October 2011 Logan City Council, VETO and Energex participated in a Review conducted by an Oakley-Greenwood consultant for the Queensland State Government. The Oakley-Greenwood Review report was completed in December 2011, but access to this report was withheld by the Queensland Minister for Energy and Water Supply until after he announced his Community Infrastructure Designation approval[6] for the Energex proposal in November 2012, based on this Oakley-Greenwood Report (OGR). Subsequent examination of the OGR highlighted many discrepancies with the powerline proposal and review assessment, including highly escalated site costs for the one local 275/110kV substation alternative that was considered[7].

Earlier this year Energex arranged for a contractor to install underground conduits for the 5.7km section along Logan Reserve Road. Our community did not object to this as we believe high voltage powerlines should be located underground in road easements.

More recently, in an attempt to overcome resistance from a group of residents in Camp Cable Road, Energex has offered to relocate a "small"(Energex description) 2.2km overhead section off 22 properties where it was proposed to run parallel with the road. Energex instead propose to relocate this section to the Camp Cable Road easement, with a double overhead and cleared 13 metre cleared easement along the front of these properties.

Energex has also attempted to accelerate Geotech drilling, Cultural Heritage assessments and tree clearing along the Logan River, but under protest from Logan City Council and our Community, the Minister for Energy and Water Supply recently directed Energex to stop work on the river section and engage with Council to review alternatives to relocate this 6.5km section along adjacent local roads, preferably as underground.

However after nearly 6 years of dealing with Energex, our Community is concerned that this is another tactic to reduce opposition leading up to the next Queensland State Election. After which, work will resume to complete this second powerline within Energex's Target Commissioning date of Quarter 1 in 2016[8].

3. Matters Addressed by this Submission

3.1 the manner in which electricity network companies have presented information to the Australian Energy Regulator (AER), and whether they have misled the AER in relation to:

3.1.1 the necessity for the infrastructure proposed

Energex issued a Planning Approval Report (PAR) Final Report on 27April 2009[9], which recommended construction of a second 110kV Feeder from Loganlea (H22) to Jimboomba Substation (JBB) for a total estimated cost of $25,673,028 at 2008/09 prices. This Energex PAR compared and costed options to justify Australian Energy Regulator (AER) approval for the proposed second Loganlea to Jimboomba 110kV powerline, but only assessed three Energex 110kV overhead powerline options. Which were:-

- Option 1 Establish (the second) 110kV Feeder from Loganlea to Jimboomba;
- Option 2 Establish 110kV Feeder from Swanbank to Beaudesert;
- Option 3 Establish 110kV Feeder from Browns Plains to Jimboomba.

Despite mentioning the need to mitigate risks for Beaudesert and Jimboomba Bulk Supply Substation (which was established concurrently in October 2010 by a separate project, not requiring AER approval because it was slightly less than $10 million), this Energex Planning Approval Report (PAR) treated all Options as equivalent. Option 2 was a technically superior solution, which would have provided an alternative source of supply direct to Beaudesert as well as provide back-up supply to Jimboomba. However Option 1 was selected based on slightly lower estimated cost, but for equivalence, this option should have included the cost of the second 110kV powerline from Jimboomba to Beaudesert (20km), which Energex now plan to construct by October 2017[10].

VETO wrote to Energex on 24June 2009 (with copy to AER) advising that the proposed Greenbank to Flagstone 110kV power line had been omitted from consideration of options. Energex replied on 3 Sept 2009 dismissing this option as not feasible because there was no substation at Greenbank, despite a Powerlink sign in the south-east corner of this established 68 ha site advising that a 275/110kV "*modern landscaped electrical substation is planned for this site*".[11]

Under pressure from Logan City Council and the affected Community, in 2011 the Queensland State Government engaged a consultant from Oakley-Greenwood to review the Energex proposed second Loganlea to Jimboomba 110kV powerline against **two local 275/110kV substation sites recommended by Council**. The Oakley-Greenwood Report (OGR) prepared in Nov 2011 reviewed Energex planning processes and stated[12] "*Given the proximity of the existing Powerlink 275kV network to the Jimboomba area, including the ULDA growth areas of Yarabilba and Greater Flagstone, in our opinion, the 275/110kV substation should have been properly considered together with the 110kV line options as part of the Project Approval Report (PAR) process.*" The OGR[13] also showed that in Dec 2007 Energex and Powerlink were planning a substation at Greenbank "*to supply future development in the Flagstone area*" and that a local substation is required to support forecast development loads. But in 2009 **Energex only considered powerline options** and the OGR states "*There is no evidence to suggest a detailed joint study was undertaken between Energex and Powerlink to confirm at the time that this 110kV line to Jimboomba was a more economic solution than a 275/110kV substation.*"[14]

The OGR also stated[15] that "*Energex's PAR fails to explain why it is necessary to transfer all of the existing adjacent 33kV network to Jimboomba.*" The OGR further states that "*Energex's forecast detailed in the PAR to justify the need for network reinforcement of Feeder F820*" was 25% higher than the 2011 forecast and the OGR considered *"that a 25% reduction in demand forecast over a three year time period is excessive*".

Energex justified the second Loganlea to Jimboomba 110kV powerline as needed to meet the (N-1) security duplication standard in Queensland, which was recommended for cancellation by the State Government's Inter-Departmental Committee on Electricity Sector Reform Review[16] in May2013 and was subsequently cancelled by the State Minister for Energy and Water Supply on 16 April 2014, with effect from 1 July 2014.

When the Minister approved the Community Infrastructure Designation for the duplicate powerline on November 29, 2012, he claimed it was needed because "*up to 9,000 consumers were at risk of remaining without electricity for up to eight hours if there is an outage of the existing line*."[6] However more recently, there appears to be less risk with Energex claiming "*The Project is proposed in response to the projected load increase expected in coming years in Mount Lindesay North Beaudesert region and the need for improved reliability*."[17]

However the claim that the Energex proposed second Loganlea to Jimboomba 110kV powerline will provide security and reliability for the electricity supply in our Region is misleading because:-

- The OGR[18] shows that the 15 year average fault rate for the existing F820 powerline is 1 fault per annum and the average outage is 8.4 minutes, because of the existing back-up network[19];
- In January 2013, a Logan River major flood demonstrated that Energex's Local Distribution network in our area, delivers significantly less reliability than F820, when 22,000 customers were without electricity supply for 4 to 6 days. However when Energex spokesman Mike Swanston was asked when supply would be restored, he advised "***we can't get into to restore supply***" because local and major roads were inaccessible;
- In future floods, Energex's proposed 7 kms of access tracks along the river will also be impassable and if the proposed second powerline is damaged, Energex will still not be able to access the Logan River flood plain area to restore powerline services **during and for many days after a flood**. Energex claim the second powerline will be built to withstand floods (incurring additional costs). But ignore the reality that if the line is damaged during a flood, it will be inaccessible for many days;
- This powerline will concentrate supply from Powerlink's Loganlea substation, with the proposed second powerline also sharing the existing F820 line easement for 8 kms, including shared poles adjacent to the Logan Motorway[20]. This proposed configuration will create multiple locations where supply on both lines could be knocked out simultaneously by a single incident and take many hours and possibly days to restore;
- So in addition to being inaccessible during floods, the potential for both high voltage powerlines to be knocked out by a single incident (flood, fire, vehicle collision etc) will create vulnerability and undermine supply security and future supply reliability for consumers over the broader region from North Mclean to Beaudesert, Mt Tamborine and the NSW border;
- With the removal of the N-1 duplication standard, the need to duplicate the Loganlea to Jimboomba feeder is no longer required. A Hill-Michael industry consultant's assessment in June 2013[21] showed that the existing 33kV network is capable of backing-up F820 for at least the next 4 years and calculates the risk of a F820 outage occurring during peak load in 2018/19 at 0.002%;
- In Energex's recent Distributor Annual Planning Report[22] the Limitation for the existing F820 feeder from Loganlea to Jimboomba is claimed to be "Security standard load at risk is 9.6MW in 2014/15" and the "Feeder does not meet security standard due to greater than 40MVA shed." Mindful of the OGR advice that "*Energex's PAR fails to explain why it is necessary to transfer all of the existing adjacent 33kV network to Jimboomba."* This 9.6MW load at risk during peak times (max 40 hours per year) could be reduced with local distribution transfers and more cost effectively backed-up with some mobile generators, pending assessment of alternatives;
- The Federal Electorate of Wright has the highest concentration of Solar PV in Australia[23] (1 in 3 homes), so with peak load and overall demand continuing to fall, the Energex proposed second Loganlea to Jimboomba 110kV powerline **is not required** and there is still time to consider more cost effective alternatives to deliver reliable electricity supply and capacity for our Region at lower cost than the currently proposed $64.2 million high impact, second powerline from Loganlea.

3.1.2 where anomalies are identified in relation to price structuring or allegations of price rorting by electricity companies, such as Energex, are raised, the possibility of these matters being investigated by a national independent body created by the Federal Government with the required powers and reach to investigate and prosecute, where necessary;

Based on our experience with Energex over almost six years, we recommend that a national independent body be established with powers to also **investigate the network planning activities** of electricity network companies, such as Energex.

Of concern is that Energex sought offers of Non-Network solutions in March 2009 and Regulatory Approval for this second powerline in April 2009 based on the estimated cost of $25.7M. When in Jan 2009 the Energex Board approved this project at a total cost of $36.17M[24] including easement acquisition costs. So was this project deliberately underpriced to exclude Non-Network or other alternatives?

The map included in the Energex Board Memorandum and the Project Approval Report (PAR) shows the proposed second powerline with one Logan River crossing, to then follow Waterford-Tamborine Road through Logan Village. However the Proposed Route Design Map[25] dated Nov 2008 which was used to prepare the cost estimates for the proposal, shows the second powerline following the Logan River for approximately 10kms. There was no mention of the proposed powerline following the Logan River in either the Board Memorandum or PAR. Was this a deliberate attempt to not disclosed the proposed Logan River route to both the Energex Board, AER and other interested parties?

Also since the Regulatory Approval, the cost of this project has steadily increased by 250% to $64.2M. Energex blame delays, when the actual cause is inadequate planning and poor consultation. However under the current regulatory system, there is an incentive for these progressive project cost increases to establish a higher capitalised asset value for this second powerline and deliver higher regulated returns for Energex.

Examples of Energex network planners manipulating the site cost for the Yarrabilba substation alternative, in favour of the proposed second powerline are also included in Appendix G (page 7).

3.1.3 to ascertain whether state-owned network companies have prioritised their focus on future privatisation proceeds above the interests of energy users;

In April 2009 the Energex Final Planning Approval Report (PAR) estimated the cost of the second Loganlea to Jimboomba 110kV power line would be **$25.673 million** (in 08/09 dollars).

By June 2010 Energex[26] estimated the total cost was **$37.4 million**, after discovering a unique opportunity to relocate the "complex overhead" (Energex description) off the river, remove two Logan River crossings and extending underground along a parallel road to save $100,000.

In September 2013 Energex[27] revealed the cost was **$50 million +/-15%** but this was before Energex commenced the 2014 Geo-tech Survey along the Logan River to determine construction costs to actually build 29 poles in the Logan River flood hazard zone to Aust. Bridge Design Code (AS5100) as recommended by the OGR.[28]

However in June 2014[29], the Queensland Budget 2014-15 Papers now reveal that the total estimated cost to "*establish a second 110kV Feeder between Loganlea and Jimboomba*" is **$64.2 million**, with $14 million expended to 30 June 2014 to justify this proposal.

More recently, Energex released a further Initial Assessment Report (IAR) to relocate 2.2 kms of the proposed double (110kV & 33kV) powerline section along Camp Cable Road to the road easement. This highlights a failure in the original consultation process, where Energex ignored requests for the powerline to be relocated to roads. Instead nearly six years on, Energex realise they need to address community opposition issues and are prepared to spend more on this IAR and the undergrounding of local distribution services, with the overall claim that community caused delays are responsible for the rising cost of this powerline.

Originally we were told that Energex was obliged to select the lowest cost option. However, we now realise rising costs for this powerline suit Energex, as cost increases increase the capitalised asset value and their regulated return for this infrastructure. Provision of the second Loganlea to Jimboomba 110kV powerline will also justify the need for the second Jimboomba to Beaudesert 110kV powerline. Which partly explains, why Energex are still determined after nearly six years and falling demand to impose this duplicate powerline on our community, despite the many inadequacies of their proposal and the missed opportunities to consider lower cost, lower impact and more reliable alternatives.

For example, the OGR revealed[30] that the cost to establish a 275/110kV (1x 375MVA) substation is $28.7M, with $8.0M included to establish the 275kV switchyard. At the Powerlink owned 68 ha Greenbank substation site the 275kV switchyard is already established, so allowing for rearrangements, a substation at Greenbank is expected to cost $25 million. Adding a 15 km 110kV feeder (along main roads) direct to Jimboomba for $15M or via Greater Flagstone which is only 4kms south of Greenbank, would then provide over twice the capacity of the proposed second Loganlea to Jimboomba powerline, located closer to the planned growth areas **at two thirds of the currently expected cost of the proposed second Loganlea to Jimboomba powerline**.

Energex claim that the process to justify a Powerlink substation would take too long, which is an interesting argument when this Energex proposed second powerline is unlikely to be completed before 2016, eight (8) years after it was proposed. In this time the Powerlink substation at Greenbank that was being planned in 2007, could have been completed on the established 68 ha site that was described in the Greenbank site selection proposal[31] as "*ideally located for a substation*."

However, we now realise that a Powerlink substation would not provide an Energex asset (other than the shorter distribution feeders) and would not add as much to the Energex regulated asset base and Energex profits.

This also appears to explain why Energex have a preference for establishing new or expanded exclusive easements over private properties rather than locating powerlines on shared road easements[32]. Firstly they are able to bully individual private landowners into conceding access more easily than road authorities and secondly the exclusive easement over private properties becomes an Energex asset that can be expanded as and when needed.

Energex have also attempted to reverse engineer justification for their proposed second Loganlea to Jimboomba 110kV feeder on a number of occasions. One of the most obvious examples was the rearrangement of the Flagstone Strategic Network Plan Maps that occurred between June 2010 and June 2011[33].

3.1.4 whether the arrangements for the regulation of the cost of capital are delivering allowed rates of return above the actual cost of capital;

Based on Energex's recorded operating profit before income tax equivalents (which are also paid to the Qld State Government), the Year on Year increases in profit are substantial and appear excessive for a monopoly essential service. As shown in Table 1 Energex's declared operating profits have grown at an average year on year rate of 33% pa. Which indicates that the regulated return rate of 9.72% is delivering returns well above the actual cost of capital for Energex.

Table 1 - Energex operating Profit before tax

Year	2009	2010	2011	2012	2013	2014	Ave (YoY)
Declared Profit $M	**176**	**261**	**332**	**403**	**502**	**723**	
Increase (Year on Year)		48.3%	27.2%	21.4%	24.6%	44.0%	**33 %**
Paid to Qld Govt							
Tax Equivalents	47	75	97	121	151	215	
Dividends	103	148	188	226	194	406	
Total paid to Govt $M	150	223	285	347	345	621	37 %
Dividends/Share (c)	11.7	16.9	21.4	25.8	33.6	46.4	
Cost /Consumer Bill (1.3 million consumers)	$115	$172	$219	$267	$265	$478	36 %

source: Energex Financial Reports 30June 2013 and 30June 2014

3.1.5 whether the AER has actively pursued lowest-cost outcomes for energy consumers;

Following complaints from Logan City Council and VETO about Energex and their proposed second 110kv feeder from Loganlea to Jimboomba, the AER undertook a review of the Energex regulatory test and compliance with clause 5.6.2 of the Electricity Rules in December 2010.

Despite the AER identifying several compliance issues and inadequacies with the Energex proposal, the AER accepted Energex's commitment to improve information disclosure in its regulatory test process. The AER advised that it would monitor future regulatory test processes undertaken by Energex "*to ensure that these*

initiatives have been implemented and that Energex is demonstrating clear compliance with the Electricity Rules."[34]

Both VETO and Logan City Council consider this AER response to be inadequate, as Energex was not obliged to substantiate their proposal or assess any Alternatives that could have delivered lower cost outcomes for consumers and our community.

3.1.6 whether network monopolies should have the right to recover historic overspending that has delivered unwanted and unused infrastructure;

No, these electricity network companies need to bear the risk for the business decisions they make, like other businesses. Electricity network distributors operate in a geographic monopoly and are expected to deliver an essential service. Up until recent years, demand for electricity grew year on year and these companies ran token programs to reduce demand. Despite having no direct competitors, they should have forecast falling demand with more efficient appliances, rising tariffs and the introduction of Solar PV distributed generation.

However, instead of forecasting falling demand they have operated in a regulated environment with a perverse incentive[35] to build more infrastructure (especially powerlines), because they receive a regulated return on the assets they build and capitalise, regardless of whether the asset is needed or used.

No other business is rewarded with a guaranteed return on investment and neither should these electricity network companies. Consequently where network distributors like Energex have over-built and over-spent on infrastructure that is unwanted or unused they should not receive returns on this asset. As well the senior executives should have their bonuses reduced and be penalised for inefficient spending of capital.

3.1.7 how the regulatory structure and system could be improved;

VETO's experience with Energex has felt like a David & Goliath battle, where Energex has the money, resources and influence to impose what they want on our community. More recently we've appreciated having access to the AER Consumer Challenge Panel, to share and validate our concerns.

Therefore we think consumer and community groups need access to industry experts within the AER, to ensure the practices of electricity network companies are monitored to counter balance the unfettered power of these monopoly companies.

Electricity network companies should be obliged to publish their Strategic Development Plans (per Region, annually) in a concise, readable format along with the forecast summaries and justifications for their proposed network developments, in addition to the currently published detailed Distributor Annual Planning Reports.

Electricity network companies need to obtain Local Government approval for network developments to ensure that these network developments meet local community requirements and network developments are co-ordinated with other infrastructure projects within each Local Government area. The intent of this recommendation being to ensure network developments are compatible with community needs, as well as enable co-ordination of infrastructure projects and the pre-provisioning of underground ducts for powerlines with other projects, particularly when roads are being built or repaired or other underground utility services are being provided.

3.1.8 whether the arrangements for the connection and pricing of network services is discriminating against households and businesses that are involved in their own electricity production;

Households and businesses generating distributed electricity should be encouraged and be entitled to receive a fair return for electricity exports to the network that reflect the savings in generation and transmission costs for electricity provided by these distributed generators.

Distributed Generation also provides competition for established (mostly monopoly) electricity providers, who need to either embrace these changes and support storage in the grid[36] or be cannibalised by this new paradigm.

3.1.9 whether the current system provides adequate oversight of electricity network companies;

Electricity network companies, particularly government owned monopoly corporations like Energex were considered to be "trusted experts", responsible for delivering an essential service to communities (originally at cost). However based on our experience with Energex, these experts are abusing the trust placed in them as they pursue increased profits for their company and presumably higher bonuses for themselves. This highlights the need for greater oversight by the AER, employing independent industry experts to assess the validity and cost effectiveness of electricity network company proposals.

There is also the need to review whether electricity network companies can continue to use Community Infrastructure Designation legislation and processes to compulsorily acquire easements when they are corporatized or privatised by long term lease or sale. These companies are then pursuing profits and bonuses and should be obliged to obtain planning approvals for their proposed developments from Local Government, like other businesses.

3.1.10 any other related matter.

After almost six years without the proposed second powerline, falling peak load and falling demand plus the escalating costs of this second powerline which Energex expect to pass onto consumers. We think it is time to **actually assess** and consider lower cost, lower impact alternatives that could more cost effectively and efficiently deliver reliable electricity supply capacity in our region.

As highlighted in the Oakley-Greenwood Report[37] there is also a need to review the "*differences in the legislation in Queensland,, that have resulted in Energex favouring a 33kV voltage level and having a policy of not using public roads as preferred line routes.*"

The CEO and Senior Executives of Energex need to be asked what bonus or increase in salary they expect to receive if they complete the second Loganlea to Jimboomba 110kV powerline, because they are obviously driven by a personal interest to complete this project, rather the best interests of our Community.

4. Summary

VETO welcomes this opportunity to provide this submission to the Environment and Communications References Committee for the Senate Inquiry into electricity network companies.

We have endeavoured to provide the information in this submission in an objective and factual way. However we are not part of the Electricity Industry and can only provide our interpretation of the experiences we've had with Energex from our Community Group perspective.

We want to see positive changes in how Electricity Network Companies operate and believe they need to change and genuinely respect the needs of the communities in which they expect to operate, especially if they want to remain relevant.

VETO representatives are available to clarify any aspects of this submission. We are also available to attend Senate hearings if these hearings are held in Brisbane.

Yours sincerely

Paul Casbolt
m: 0428 325 275

www.veto.org.au
www.VETO.org.au

References

[1] Corridor Selection Report prepared by Aurecon (previously Connell Wagner) for Energex (13Nov'08) Ref 37363-001-01 Rev2
[2] **Energex Final Initial Assessment Report** (FIAR) June 2010 Table 11.1, revised to 20.2ha in the Energex IAR Minor Amendment to CID Camp Cable Road alignment Oct 2014 Sectn 9.2.16 p54.
[3] **Energex Final Initial Assessment Report** (FIAR) June 2010 Page 2-22 & Table 2.5 (with savings disputed by Logan Council)
[4] **Cardno Final Report** - Proposed 110kV Line from Loganlea to Jimboomba - Review of Provided Documents (Jan'11) page 9
[5] Cardo Final Report page 22 (prepared for Logan City Council)
[6] Minister Mark McArdle Media Release: Logan energy supply to be strengthened by new power line
[7] Refer Appendix G (Page 7) **What has changed that we now need to use $8m ?**
[8] **Energex DAPR** 2014/15-2018/19 Volume 2 page 889
[9] **Energex Report** - Proposed Construction of a 110kV Feeder from Loganlea to Jimboomba Substation (27th April 2009)
[10] **Oakley-Greenwood Final Report** (OGR) Electrical Network Options for the Jimboomba Area (5 Dec'11) Appendix 7.1 & 11.2
[11] Refer Appendix C
[12] OGR pages 5, 8 and 51
[13] Ibid page 51
[14] Ibid page 51
[15] Ibid page 52
[16] https://www.dews.qld.gov.au/__data/assets/pdf_file/0009/78543/idc-report.pdf pages 8 & 9
[17] Loganlea to Jimboomba Network Upgrade Camp Cable Road Ecological Assessment Report 27 August 2014 by amec page 1
[18] OGR Appendix 6.3.3
[19] Refer Appendix A
[20] Refer Appendix F
[21] Assessment of 33kV Supply Capability by GHD Hill Michael (June 2013) for Logan City Council
[22] Energex DAPR 2014/15-2018/19 Volume 2 page 889
[23] http://100percent.org.au/sites/default/files/Wright.pdf
[24] Refer Appendix G (pages 1 to 4) - Energex Board Memorandum 14540 (27 Jan 2009)
[25] Refer Appendix G (page 5) – Proposed Route Design Map (May 2007)
[26] Energex Loganlea to Jimboomba FIAR, June 2010, Table 2.5
[27] Energex Distributors Annual Planning Report (DAPR) 2013/14-2017/18 - Volume 2 page 1003
[28] OGR Appendix 12.1
[29] Queensland Budget 2014-15 Papers (June 2014) pages 36, 37 & 44
[30] OGR page 29
[31] Powerlink Greenbank EIS (2005)
[32] OGR page 53
[33] Refer Appendix H
[34] Refer Appendix I extract and AER Quarterly Compliance Report April – June 2011 section 3.1.4
[35] Power Corrupts by Jess Hill http://www.themonthly.com.au/issue/2014/july/1404136800/jess-hill/power-corrupts
[36] Ergon says unsubsidised battery storage to cut grid upgrades by one third
[37] OGR page 53