

**Energex Loganlea to Jimboomba Network Upgrade
Response to Final IAR**

(Closing 9 July 2010)

Submission by

Logan and Albert Conservation Association

Prepared by

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The Logan and Albert Conservation Association (LACA) completely opposes the proposed new 110 KV Energex sub transmission line from Loganlea to Jimboomba. LACA has numerous concerns in relation to the proposal and the Final IAR that is open for comment until 9th July 2010. LACA's key concerns are outlined below. LACA supports the submission lodged by VETO (Veto Energex Towers Organisation), the Australian Koala Foundation and Brisbane Region Environment Council (BREC).

The proposed network upgrade from Loganlea to Jimboomba does not balance social, environmental and economic considerations as claimed in the Final IAR. LACA shares the concerns of the wider community about the negative impacts on the community as well as the negative impacts on the natural environment and wildlife such as koalas that have been historically recoded in this region and continue to survive here.

Energex has not properly accounted for the environmental effects of its activities in this Final IAR. The corridor selection has focused on cost minimization and environmental offsets instead of minimising impacts on koalas and koala habitat through good planning decisions made at the corridor selection stage.

Energex has not adequately considered all other possible routes that may be more cost effective, reduce environmental impacts and social impacts. The current proposal poses risks to the community and to the environment.

LACA is concerned about the inadequacies of the environmental assessment to date and that issues raised in community consultation have not been adequately addressed.

In relation to natural hazards like flooding and bushfire, LACA does not believe that this proposed powerline project complies with SPP1/03 Outcome because it has not adequately considered if any " other site is suitable or reasonably available for the proposal" (Final IAR p 9-1).

1.0 INSUFFICIENT CONSIDERATION OF ALTERNATE OPTIONS

LACA remains unconvinced that Energex has adequately considered all viable alternate route options that may minimise impacts on the natural environment and the community.

(I) OTHER VIABLE ALTERNATIVES

1. LACA has continued to recommend in all of its submissions to Energex that other viable corridor routes be considered and that the CSR options be reviewed . To date this concern has still not been addressed.

Any route that would have no Logan River crossings, reduce environmental impacts on the river, riparian areas, biodiversity, essential habitat ,remnant and regrowth vegetation would be supported by LACA. LACA supports the co-location of underground powerline infrastructure in road corridors to minimise impacts on the environment and the community. LACA again recommends the investigation of an alternate route.

2. Logan City Council has previously suggested a possible powerline corridor along Waterford Tamborine to co-locate energy infrastructure with future road upgrades. Although a meeting was held with Logan City Council, Main Roads and Energex , this proposal was not pursued further because Main Roads would not enter into discussions.

This could be an alternate route that could be co-located with future road upgrades and be more cost efficient. It would involve only one river crossing further north on the Logan River and there would be cost savings from four river crossings that would not be needed and hence additional sections could be underground. Further discussions need to be had with Main Roads to reduce costs and improve long term infrastructure planning decisions.

3. Logan City Council is now suggesting an alternative could be a substation at Yarrabilba and that the 110 kV powerline could deviate from an existing 275kV Powerlink line. This would reduce the need for river crossings completely and these cost savings would enable further undergrounding of the 110 kV powerline.

4. VETO is suggesting an underground and overhead powerline to run underground from Logan Reserve Rd to Chambers Flat Rd, then south along the existing 275 kV line to one river crossing and then underground to the Jimboomba Substation.

Points 2,3 and 4 above all illustrate that there are viable alternatives that have not been adequately investigated by Energex. None of the above suggestions involve five crossings of the Logan River and could include considerable cost savings to Energex if co-located on road corridors which would enable additional underground sections to be provided, with benefits to the community and to the environment.

Because of the lack of previous background flora and fauna studies in the Mt Lindesay North Beaudesert Area, any finalization of any future route would not be supported without the appropriate detailed and rigorous environmental studies.

(II) CSR CONCERNS

1. In the CSR, 4 options were not genuinely considered – two options were proposed to be underground and these options were never seriously considered by Energex (due to cost prohibitive factors). Consequently only 2 options only were presented to the public – Option 1 (upgrade existing corridor along Chambers Flat Rd) and Option 2 (new proposed corridor along Logan River)
2. The CSR Option 1 (upgrade existing corridor along Chambers Flat) never considered the possibility of an overhead and underground combination that may make this route a viable alternative and reduce impacts on ‘sensitive receptors’ . This Option 1 could be linked to the Jimboomba Substation as it is currently being upgraded.
3. LACA met at Greenbank with Energex officers in relation to another power upgrade proposal and was told that “ energex has a policy not to underground in rural areas” (personal communication). This comment also indicates that the 2 underground options that were proposed in the CSR report were never really being seriously considered by Energex and as such it was publicly misleading and inappropriate to represent this information in any other way as communicated in the CSR.
4. The CSR reports (p 5 section 2.2.1) that Energex realized in the late 1980s, when the Chambers Flat corridor went in, that they would need to upgrade this in

the future. However, at that time made no effort to secure this easement other than to acquire a “small number of easements”. This is very poor planning. Now in 2009 Energex is wanting to fix this poor planning by acquiring a new corridor at the expense of the community and the environment where the proposed corridor is to be accommodated on private property or on public open space and road reserves.

5. Energex is needing to provide this corridor now because the existing corridor along Chambers Flat Rd was not secured in the late 1980s (CSR p5) despite Energex knowing they would need to upgrade in the future – the social, environmental and economic costs for bad planning by Energex should not be carried by the community.
6. The SAT weighting of 40% social, 30% environment and 30% economic is publicly misleading as the AER dictates that Energex **must** “*pursue the lowest net cost solution that complies with all applicable legislation*” (CSR p 25). This increases the weighting of economic factors which outweigh the social and environmental factors **in every decision that Energex makes**. This has biased the CSR recommendations. As such, Option 2 does not represent the “*best balance of social, environmental and economic concerns*” (CSR p 31). SAT is an assessment tool that has been devised by Energex.
7. LACA calls for the CSR process to be reviewed and additional alternative route options to be considered including
 - other overground and underground combinations, especially for the existing powerline easement along Chambers Flat Road where sections of the corridor that are too close to buildings for public safety could be put underground
 - More forward planning by Energex (e.g. 50 – 70 year time frame) is needed to match the planning for the SEQRP and to include more innovative renewable energy options for all future energy requirements beyond 2010.

2.0 NETWORK PLANNING CONCERNS

1. LACA is concerned that the Energex Network Plan does not show forward planning to reduce social and environmental impacts, rather an unplanned series of power corridors (including Powerlink) through Logan Reserve, Chambers Flat and Stockleigh/Jimboomba to support development of future growth areas like Yarrabilba and Flagstone.
2. **Any new energy infrastructure, substations and corridors should be sited within the footprint of these new developments. Existing communities should not be used as infrastructure sites and easements for these new growth areas. Localised on site energy generation should be prioritised to reduce the need for powerline easements to encroach on neighbouring suburbs and communities.**
3. Lack of planning by Energex to secure easements in the 1980s and in 1990s (e.g. current F820) means that Energex is now looking to secure additional easements for the future that they should already have acquired in the past.

In a letter to LACA on 4 June 2010 and 25 February 2010, Energex revealed “*it is true to recognize that the potential for a future upgrade of the powerline within the easement would exist...Currently Energex does not have any plans to upgrade the proposed powerline.*”

If Energex is really planning effectively for future energy demand and infrastructure sites and easements, especially with the planning of new communities like Yarrabilba, it is critical for the existing and future residents to have better certainty in terms of infrastructure plans and needs for the future. Energex should be providing this information to the community now as part of their planning for the future.

4. Large future population and development needs to be planned for Yarrabilba and Flagstone and other developments in the MLNB area. However, this planning needs to be reviewed now. It appears that the SEQRP has proposed a plan for the region for the next 50 – 70 years, but Energex appears to not be planning with this time frame in mind.
5. Energex has continued to state to the community and in the Final IAR that these new and upgraded easements may be used to accommodate more powerline infrastructure in the future. The Logan River section of this proposed sub transmission line is not a powerline easement corridor now and should not ever be used as a powerline easement.
6. Energex’s planning does not include accounting for climate change and mitigating its effects and impacts. Future large developments of the size of Yarrabilba and Flagstone will need to be energy self sufficient, reduce energy use and maximize the use of renewable energy (e.g. Queensland Government Climate Smart 2050).

There will be mandatory requirements in new developments which will result in the energy projections per household being reduced e.g. compulsory solar hot water or gas hot water are now required for all new houses. Energex needs to recalculate its energy projections to account for these and future reductions in energy use.

Development for the next 50 – 70 years should mean planning for new developments like Yarrabilba and Flagstone to be totally energy self sufficient and using renewable energy to have zero energy use.

What is the environmental plan for the design and energy requirements for Yarrabilba and Flagstone? Where is this information provided to the community in the Final IAR to indicate that Energex has had discussions in relation to future energy demand requirements for this area? What are the energy projections per household?

3.0 BIOREGIONAL CORRIDORS

LACA does not support the use of bioregional corridors for infrastructure corridors or as an industrial easement which is what is being proposed by Energex. This proposed powerline corridor will sever 3 bioregional corridors, their habitat and degrade their

biodiversity. This proposed subtransmission line will not ensure the long term viability of the koala or other fauna species like gliders that depend on the retention of habitat and habitat connectivity in this region and in South east Queensland.

1. LACA is extremely concerned that the proposed powerline easement of 23.2 km will run approximately 22.2 km through 3 bioregional corridors –

- Logan River Bioregional Corridor
- north and south of Camp Cable Rd - the Camp Cable Rd vegetation forms important connectivity to the Birnam Range to the south.
- east to west across Waterford Tamborine Rd – the vegetation along Waterford Tamborine Rd forms important linkages to Plunkett Reserve to the east.

2. The DERM Ministers for Sustainability's Office has confirmed the importance of this area with its linkages to four reserves at Plunkett (Old Growth Vegetation), Birnam Range Reserves to the south, Stockleigh and Wolffdene/Bahrs Scrub Rainforest to the north.

3. The Logan River is a critical bioregional and ecological corridor in the MLNB area, extending 1 km either side of the Logan River (personal communication EPA 2009).

4. The Logan River is important for its connectivity to the surrounding landscape and habitat areas in a broader SE Queensland context, as it links and intersects with other significant bioregional corridors.

5. The Final IAR acknowledges that there is the potential for the proposed powerline to result in impacts to bioregional corridors.

4.0 LOGAN RIVER CONCERNS

LACA opposes the suggestion by Energex to use this valuable natural asset as a possible powerline easement. LACA strongly opposes the use of recreational areas, open space and areas of natural value to be used as a powerline easement.

In the interests of community health and safety, LACA requests again that the flood modeling be revisited to include information provided by the community to make the flood modeling more accurate.

1. There is no existing easement that crosses the Logan River five times in the current location along the proposed corridor.

2. The Logan River is a bioregional corridor that should be protected and valued for its habitat values for flora and fauna.

3. Endangered regrowth vegetation will be fragmented where sites 3 and 4 are currently proposed on the Logan River section.

4. The Final IAR states (Executive Summary p 9) that “there is likely to be some disturbance to the riparian vegetation at a number of locations also on the project area” e.g. around the pole footings. Riparian offsets should be provided as part of the Offsets package being developed by Energex.

5. LACA continues to be concerned about the impact of floods along the Logan River on the poles and the proposed powerline . LACA is aware of other occasions where Energex poles have been damaged during storms and extreme weather events. LACA does not believe that this route provides certainty about safety for the community. It does not provide a reliable emergency access in the case of flood , or even after short periods

of rain when the floodplains of the Logan River are impassable for months after small amounts of rain.

6. LACA does not believe that this proposed powerline project complies with SPP1/03 Outcome because it has not adequately considered if “no other site is suitable or reasonably available for the proposal” (Final IAR p 9-1).

7. LACA is extremely concerned that despite information provided by long term residents about the huge flood risks from the Logan River, Energex has refused to revisit the Flood Modelling conducted by in June 2009 Worley Parsons. The Logan River has major flood events that do not usually co-incide with major flood events for other rivers like the Brisbane River. With more urban development planned in the Mt Lindesay North Beaudesert Area around the Logan River runoff will be increased and potentially increase water flow along the Logan River.

8. LACA is extremely concerned by the declining water quality in the Logan River Freshwater and Estuary. LACA does not support the further degradation of these environments through increased soil erosion, salinity and acid sulphate soils.

9. The disturbance of soil on potentially contaminated sites may negatively impact on the water quality of local creeks and the Logan River with negative effects on public health and safety and fauna.

10. Climate Change, and Storm Surges

The Final IAR (p 4-12) states “that poles are proposed within close proximity to the Logan River however it is considered that these do not pose a significant impact to the river process”. However, this is not taking into account the increased risk of cyclonic conditions further south along the east coast of Queensland , the storm surges that may result from climate change and the increased flood risks that may occur with this.

11. The Logan City Council Logan Village Plan indicates a planning intent to preserve the Logan River for 100 metres and the preferred land use is for recreation and open space.

12. As yet, the tourism potential of the Logan River is untapped and this potential asset has not been fully realized. If the Logan River is used for a powerline easement such as the one being proposed that tourism value will not be realized.

13. The scenic amenity of this region will also be degraded.

14. There will be a greater demand in the future for tourist areas, areas of scenic value and recreational areas with greater population growth in the Mt Lindesay North Beaudesert area and in SE Qld that is being predicted. Natural assets such as the Logan River are of particular value to future development areas like Yarrabilba, Flagstone and Park Ridge.

15. LACA strongly opposes the use of recreational areas, open space and areas of natural value to be used as a powerline and infrastructure easements. Open space such as parks and reserves like Newstead Park, Henderson St Park, Logan Village Reserve and the reserve on the corner of Camp Cable Rd and Edelsten Rd are valuable local and state assets. It is not the best and fairest use of this land in the public interest.

5.0 METHODOLOGY OF FAUNA ASSESSMENT

LACA has several concerns in relation to the lack of best practice ecological assessment in this Final IAR.

The Final IAR acknowledges the high biodiversity and the lack of background information and previous studies available for the Mt Lindesay North Beaudesert Area (Final IAR p 11-3). This is why it is critical for Energex to ensure that rigorous ecological assessment is conducted. There is a particular lack of fauna information collected for this region and without this biodiversity assessment cannot be conducted.

It is critical to note that historically there is a lack of fauna data for the Mount Lindesay North Beaudesert Area. This, however, does not mean that EVR taxa do not inhabit this area. Rather in the absence of data, the **precautionary principle** needs to be applied. As best practice, more thorough and rigorous ecological assessment of this region is still urgently needed. Long term rather than one off short term studies as conducted for Energex in this final IAR are needed before conclusions can be made about the likelihood of whether EVR taxa are present or not.

1. LACA is extremely concerned that flora and fauna monitoring has only been conducted in four locations along the southern part of the proposed corridor route between the existing Powerlink easement and the Jimboomba Substation around Camp Cable Rd. This represents 4 sites studied over only 4.75km of the proposed 23.2 km corridor route . In the IAR (Appendix H1 p 2) the field investigations were intended to “*describe the existing environment and verify and delineate the findings of the desktop study*”. This cannot be done if detailed flora and fauna assessment was not conducted in other areas along the proposed corridor route. No fauna assessment has been made east or west of the Logan River section. Only four sites along the southern section of the proposed route has been assessed and this indicates a bias in the methodology used.

2. Seasonal Variation

Fauna surveys were conducted over a consecutive 6 day period during March 2009 (IAR H1 p 3). “*Best practice for ecological assessments is to conduct surveys during different seasons to obtain a better understanding of species using the area. One survey is insufficient and a more detailed assessment is needed because the high biodiversity evident in the Mount Lindesay North Beaudesert area.*” (LACA submission July 2009)

The Final IAR claims that an additional fauna survey was conducted in September 2009 to take account for seasonal variations (Final IAR Executive Summary p 9) and “*determine the presence , or otherwise, of the spotted tailed quoll, wallum froglet and gree thighed frog*” (Final IAR Executive Summary p 9) . The length of this survey was not specifically stated in the IAR. However, although a target survey for these species was conducted in September 2009, these species were not targeted in the

March 2009 survey period. Hence, seasonal variations could not be determined by a one off survey.

Different survey types and techniques were used at different sites in March 2009 compared to September 2009. For example, no pitfall trapping was required in the second survey in September 2009 (Appendix H 1 p 5). This method does not enable seasonal variations to be accounted for and this is not best practice as was requested by LACA in their submission in July 2009. LACA's submission in July 2009 raised concerns about fauna survey studies conducted in one time period and for one season and for one year. This matter has still not been addressed by Energex (see later sections on Koalas and Quolls).

Best practice is to conduct surveys over a long term, with seasonal variations. Consequently the fauna surveys conducted for the Final IAR do not account for seasonal variation as claimed and do not demonstrate best practice.

3. Not all representative habitats and vegetation along the complete proposed route have been assessed and a more thorough ecological assessment would be expected by this stage for such a proposal if it was known that limited ecological information was available. The methodology stated that it "*included undertaking a detailed literature review of previous studies completed within the vicinity of the proposed development area. Due to the limited amount of ecological investigations that have been conducted in the area in the past it was deemed appropriate to undertake a high level assessment of the proposed development area by selecting target areas that were considered to be representative of the habitats and vegetation communities within the proposed development area.*" LACA does not believe that a high level of assessment has taken place and the sites assessed for fauna and RVT taxa like quolls were limited.
4. Some river crossings were not assessed by foot but from the water (Final IAR Appendix H1 p 6). The rigorous assessment of any proposed river crossings along the final route is absolutely necessary and has still not been undertaken at this stage.
5. No detailed fauna surveys have been conducted east or west of the Logan River area for the areas of Waterford West, Loganlea, Logan Reserve, Waterford, Buccan, Chambers Flat, Logan Village, Stockleigh despite significant sightings of Endangered, Vulnerable and Rare taxa like the spotted tail quoll, koalas, green thighed frog and other species in these areas. The Final IAR cannot be described as a detailed, comprehensive or high level of assessment in this regard.
6. The best time to survey *Litoria brevipalmata* is after summer rain events. As only four sites were surveyed for Energex in the southern area of the proposed corridor during March 2009 and September 2009, consequently any populations of *Litoria brevipalmata* outside of these locations would not have been sighted at the time of the ecological assessment. The survey period of September was noted in the Final IAR as "dry and little rain". September would not have been a suitable time to conducted a target survey for *Litoria brevipalmata*.

7. In Figure 11.4 (Final IAR Chap 11) there are numerous spotted tail quoll sightings west of the Logan River, with the closest sighting less than 1 km west of the Logan River near Anzac Avenue. The season with the highest number of reported sightings for quolls in this area was from June to August as young males disperse at that time (Burnett 2006). Despite this information being communicated in LACA's submission in July 2009, the additional surveys that were to potentially target quolls were conducted in September 2009 and would have not been the optimum time for collecting information in relation to a federally endangered species (EPBC Act) and a vulnerable species (NC Act). (See section on quolls).

8.. In the Final IAR, the summary of the methodology provided for the community is confusing and incomplete. It does not clearly itemize the years of the surveys, or clearly identify the types of surveys conducted over different time periods . There is reference to March 2009 , May and September 2009 which is confusing because there is no way for the community to identify what specific surveys or assessments were conducted for each of these time periods. There is reference to a scat analysis that was to be done, but no summary of this information was provided for the community.

9. Without appropriate and rigorous field assessment of how can “*a comprehensive understanding of flora and fauna assemblages within the project area*” be achieved?

10. The Final IAR notes the high diversity of LCC's locally significant fauna and flora species as per the LCC LGA website with 29 species noted as significant to the area, yet only four sites along Camp Cable Rd were used to specifically survey fauna.

6.0 THREAT TO BIODIVERSITY

The Final IAR acknowledges that “*The project area is rich in biodiversity*” (p11-21) . It also acknowledges that “*vegetation clearing within the southern portion of the project has the greatest potential to create barrier effects within the project area*” (Final IAR p 8-20) and that “*vegetation removal has the capacity to reduce biodiversity levels and habitat values, impair habitat connectivity and increase erosion, sedimentation and weed proliferation*” (Final IAR p 8-14). The IAR confirms edge effects were prominent from existing linear infrastructure and that “*vegetation clearing associated with the Project is likely to extend these edge effects* “. Yet Energex intends a business as usual approach and is persisting with this corridor investigation, rather than reviewing its proposed location and route for the corridor.

The Final IAR states that “*Flora and fauna can be particularly susceptible to disruptions in habitat connectivity if the species has small, extinction –prone populations, low reproduction rates, poor recolonising ability in modified habitats and a high bias towards habitat specialization*”. The areas around the proposed powerline corridor indicate numerous rare and threatened species such as the spotted tailed quoll, green thighed frog and wallum froglet, as well as glossy black cockatoos (specialised feeders) that have not be adequately accounted for in the field surveys conducted so far. Rarer species are inherently more difficult to find and need greater effort and longer term studies to determine their presence or lack of presence in an area . The fauna surveys

conducted so far have not achieved this. The **precautionary principle** needs to be applied.

This is not sustainable development or sensible planning. Koalas in South-east Queensland are listed as vulnerable and are currently being considered by the Federal Government for its status to be listed as an endangered species. Energex should review its proposed corridor to select a route that best minimizes its direct and indirect impacts on koala habitat and essential habitat. Koala offsets and mitigation strategies such as revegetation are only secondary considerations to reducing habitat clearing through koala habitat areas which should be the priority consideration at the planning stage.

The Final IAR (p4-28) inaccurately states “*revegetation directly underneath and immediately adjacent to the proposed sub transmission line will be possible*” however this will not be possible for the whole length of the widening of the powerline corridor from its existing 10-15 metre width and will involve an additional clearing of between 25-30 metres especially in the southern sections along Camp Cable Rd and Waterford Tamborine Rd. In areas that do not currently have an easement this will involve more clearing. Consequently the statement in the Final IAR “*it is expected that the overall impact on the biodiversity and koala conservation themes which form part of the natural environment policy will be minimal*” (p 4-28) is misleading and inaccurate.

Energex acknowledges that “*The high population growth rates within the MLNBA region mean that the existing natural values of the area are potentially threatened by future development. Accordingly energex has recognized the important ongoing contribution of the remaining areas of natural vegetation and fauna activitie close to the Logan River and the vegetation alongside the exsisting Energex easement which runs into the Jimboomba Substation*” (Final IAR p 4-46). However, Energex is persisting in their intention to use this corridor for its network upgrade.

7.0 LOSS OF VEGETATION AND ESSENTIAL HABITAT

LACA does not support the clearing of valuable remnant and regrowth vegetation or essential habitat. The current proposal increases the width of the powerline easement to 40 metres. Areas along existing 33 KV easement such as on the southern section of Camp Cable Rd are currently cleared from 10 – 15 metres wide. This means that an additional 25 – 30 metres of vegetation will need to be cleared even in areas along an existing 33 kV easement. If this powerline was put underground and co-located with road infrastructure (especially in environmentally sensitive areas) then this would in fact reduce the amount of vegetation that would need to be cleared. In the case of Camp Cable Rd , if the powerline easement was put underground and relocated to the road easement with the 33kV relocated with it , then this may have better environmental outcomes and social benefits than what is currently being proposed.

The proposed powerline easement will clear significant areas of remnant and high value regrowth vegetation as well as essential habitat and koala habitat. LACA is concerned that some of this 236 287m² regrowth vegetation may be suitable for listing as remnant rather than regrowth vegetation. This may have impacts on the offset package being negotiated by Energex and LACA requests that this be reviewed by the Queensland Herbarium.

- 1 Endangered dominant, endangered subdominant and of concern dominant remnant vegetation will be lost along the corridor, especially along Camp Cable Rd and Waterford Tamborine Rd
2. Some areas of endangered and of concern remnant vegetation as well as endangered sub dominant regrowth vegetation will be lost along the Logan River Corridor.
3. Areas to the west of Waterford Tamborine Rd are also indicated as Essential Habitat for koalas (Section F).
4. Endangered subdominant regrowth vegetation along sections E,F, G especially along Camp Cable Rd and Waterford Tamborine Rd
5. Significant areas of essential regrowth habitat also impacted along Camp Cable Rd and Waterford Tamborine Rd
6. Approximately 5.7 km of the 23.2 km proposed powerline route runs through endangered subdominant regrowth vegetation.
7. Areas with not of concern remnant vegetation will be lost to clearing, fragmentation of vegetation and increase weeds from edge effects. Some areas with not of concern vegetation currently provide valuable buffers and habitat connectivity to adjacent endangered and of concern vegetation , such as the reserves of the corner of Camp Cable Rd and Edelsten Rd. Clearing an additional 25-30 metres through such reserves continues to degrade and fragment valuable natural habitat and food sources for locally and regionally significant species such as the greater glider, feathertail glider, squirrel glider, koala (check resident reported sightings).

8. Misleading Statements

It is **misleading** to the community for Energex to state in the Final IAR that *“In other areas the proposed subtransmission line follows the existing easement thus minimizing the amount of vegetation that will be cleared”* (Final IAR p 14-48). This statement was made in conjunction with references to the southern section of the proposed easement which also contains some of the most significant areas of remnant and regrowth vegetation as well as areas of koala habitat value. The loss of vegetation in this location will have significant negative impacts on habitat connectivity and contribute to a loss of local and regional biodiversity.

The Final IAR (p 3-5 and p 4-46) inaccurately claims that a current easement of 20-30 metres has been cleared for existing infrastructure. This claim is not true as much of the 33 kV easement has been cleared to only 10-15 metres, especially the area to the south of Camp Cable Rd. This means that an additional 25-35 metres along the length of the proposed corridor will still need to be cleared through remnant vegetation, regrowth vegetation, essential habitat, essential regrowth habitat and areas of high and medium koala habitat value.

8.0 OFFSETS

1.Information regarding Offsets is spread throughout different sections of the Final IAR e.g. chapter 4,8,11. This makes it difficult for the community to determine the final Offset Package Energex is committed to. Information about Offsets (e.g. Koala Offsets) is still incomplete at this stage of the process. LACA recognises that Koala Offsets (as per Koala SPP 2/10) apply, as well as offsets for endangered and of concern remnant vegetation and endangered regrowth vegetation.

2.Will Offsets be provided for riparian areas, essential habitat or essential regrowth habitat?

3. Any Offsets should be used within close proximity to the location of the powerline corridor once the route is finalized. These Offsets should be within the Logan City Council area.
4. LACA acknowledges that Offsets are only a secondary consideration and that the initial route selection process in the first instance should select a route that minimizes impact to koala habitat, remnant and regrowth vegetation, essential habitat and riparian areas.
5. It should be recognized that Offsets provided in the form of new saplings being planted cannot perform the same ecological services as any mature trees that are cleared. Many of the trees in this proposed corridor are mature trees that are remnant or endangered subdominant regrowth that are essential habitat for rare and vulnerable fauna such as the spotted quoll, koala and glossy black cockatoo.

9.0 FAUNA CONCERNS

This proposed subtransmission line will not ensure the long term viability of the koala in this region or in South east Queensland. The proposed powerline corridor will sever 3 bioregional corridors, clear and fragment their habitat and degrade their biodiversity. Other rare, vulnerable and threatened fauna species as well as common fauna species will be at greater risk from the ongoing removal and fragmentation of habitat.

There is a lack of information generally about wildlife in the Mount Lindesay North Beaudesert Area. Without appropriate rigorous fauna surveys good planning decisions cannot be made. Without fauna assessment there can be no biodiversity assessment.

9.1 KOALAS

1. LACA does not support the fragmenting of koala habitat areas as indicated by this proposed powerline route. Along the 23.2 km route , **approximately 4.2 km of high value koala rehabilitation area and 2.6km of medium value koala rehabilitation area** will be impacted especially along the southern section of the easement between the Jimboomba Substation and Waterford-Tamborine Rd.
2. Not only will vegetation along these sections be cleared between 20 – 30 metres wide, but habitat connectivity will be fragmented which will result in greater risks to koalas from dog attacks and cars.
3. Koala Offsets are only considered as a last resort when no other alternatives can be investigated e.g. alternate route selection. In this case LACA is not convinced that Energex has considered sufficient route alternatives that minimise the loss of vegetation as already outlined in Section 1.0 of this submission.
4. The Final IAR claims (p11-2) that *“the project has been planned and developed to minimise impacts on conservation values including assessable koala habitat through the corridor selection, assessment and refinement of the preferred route”* , .How is this possible when no dedicated detailed koala survey and habitat assessment has been conducted over the whole of the route or compared to other possible route locations?
5. No detailed koala survey or habitat assessment has ever been conducted in the area of Camp Cable Rd, Waterford Tamborine Rd or the Logan River or for the Mt Lindesay

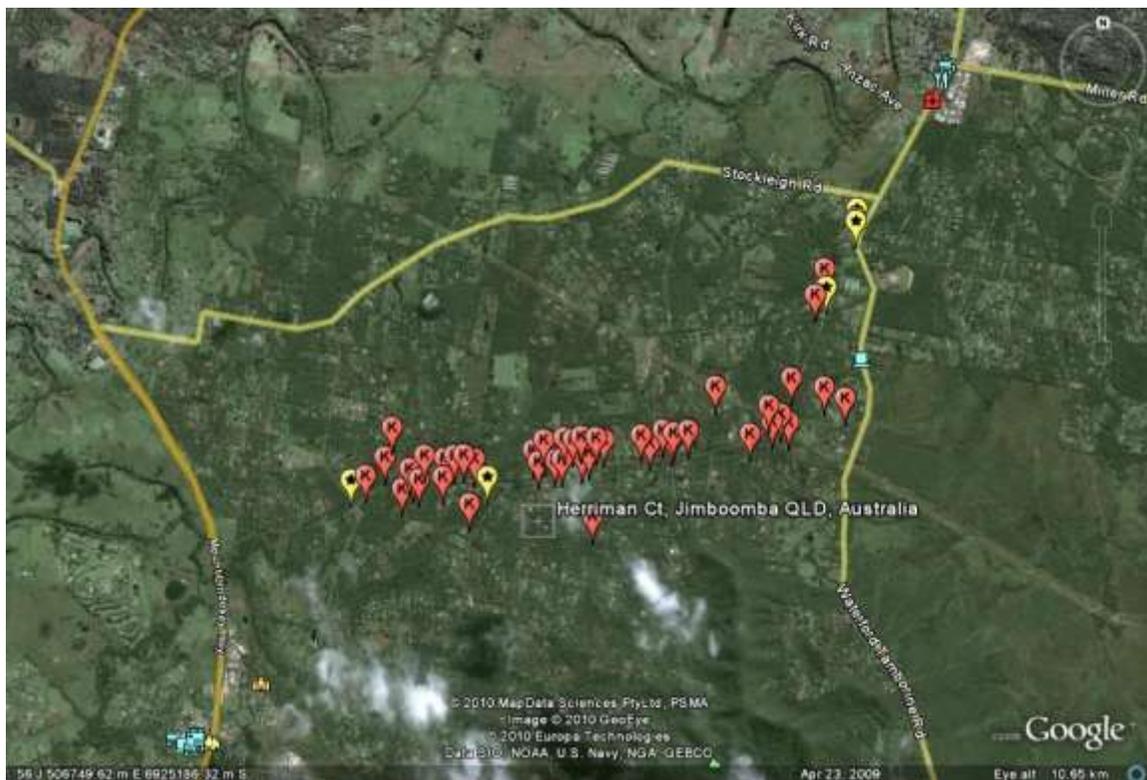
North Beaudesert Area. This information is urgently needed for the best planning outcomes and decision to reduce impact on environmentally sensitive areas.

6. The Final IAR does acknowledge “3 koalas were observed and anecdotal information provided by local residents confirmed that the local area has a large koala population” and that “Wildnet data also highlights the strong presence of the species within the project area and wider local area”. It also notes (p11-11) that “issues associated with the impact that power easements create with respect to the koala are significant given the width of the clearing required under current Energex Electrical safety regulations for 110KV transmission lines” which may result in increased dog attacks.

7. COMMUNITY SURVEY AND KOALAS

A joint VETO and LACA survey of 50 local residents along Camp Cable Rd and Waterford-Tamborine Rd was conducted from March to June 2010 . This survey revealed 42 property owners had seen or heard koalas on their properties (**Figure 1**). **Figure 1** shows the total of all koala observations by residents in red markers while the yellow markers show residents who reported wildlife sightings but did not report koalas.

Figure 1 Total Resident Sightings of Koalas March to June 2010 (reported Camp Cable Rd and Waterford Tamborine Rd)

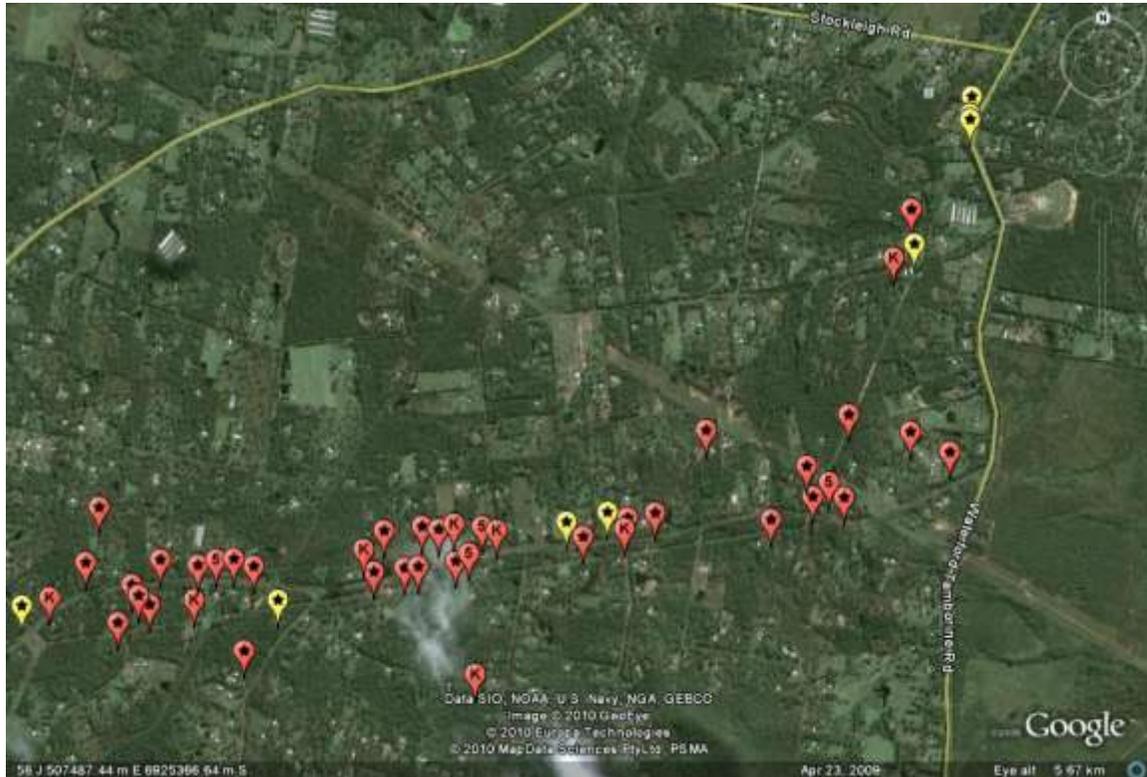


Source: VETO and LACA Community Survey March to June 2010

Of the 42 residents who reported having seen or heard koalas, 30 reported having seen or heard koalas on their property in the last 12 months (**Figure 2**). **Figure 2** shows red

markers with stars for the koalas reported by the community in the last 12 months. The red markers with the number 5 represent koalas having been seen or heard by residents in the last 5 years. The yellow markers show residents who reported wildlife sightings but did not report koalas. Some residents also reported historic long term sightings of koalas e.g. “2 or 3 koalas seen every year for 15 years”.

Figure 2 Resident Sightings of Koalas in the last 12 months (reported March to June 2010 Camp Cable Rd and Waterford Tamborine Rd)



Source: VETO and LACA Community Survey March to June 2010

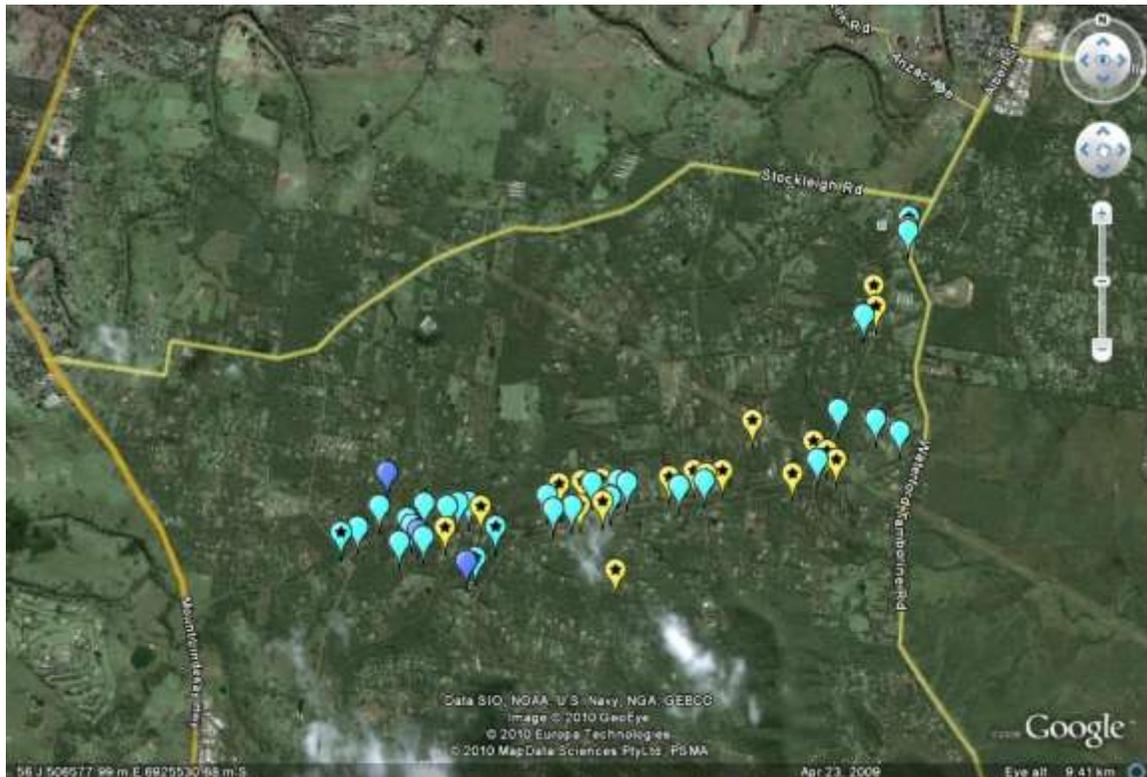
How can a net gain in koala bushland be achieved for the koala population along or surrounding the proposed powerline corridor ?

Any further details in relation to this survey is available by contacting LACA (c/o Anne Page ph 3297 0624 who has collated the survey results). This information about koala sightings will be forwarded to Wildnet as soon as possible.

9.2 GLIDERS

1. Of the 50 residents surveyed by VETO and LACA from March to June 2010, 19 did not report seeing gliders on their properties. 32 residents did report gliders on their properties (**Figure 3**). In **Figure 3** the blue markers represent feathertail glider sightings, and the aqua coloured markers represent sugar and squirrel glider sightings. There are 4 aqua coloured markers with stars which represent greater glider sightings. The yellow markers show residents who reported wildlife sightings but did not report gliders.

Figure 3 Resident Sightings of Gliders (reported March to June 2010 Camp Cable Rd and Waterford Tamborine Rd)



Source: VETO and LACA Community Survey March to June 2010

Any further details in relation to this survey is available by contacting LACA (c/o Anne Page ph 3297 0624 who has collated the survey results).

2. LACA has identified errors in the Final IAR in Appendix H2 Threatened Species Matrix on p 25-27. It appears to have errors in the information for Yellow bellied glider, sugar glider and squirrel glider e.g. for food sources and glide distances. This text is an error from the IAR in 2009 and has not been edited.

- Yellow bellied Glider - Diet – arthropods, insect and plant exudates (honeydew, eucalypt sap, nectar and pollen (Lindenmayer 2002)
- Squirrel Glider – Diet – arthropods (coleopteran and lepidopteran larvae), insect and plant exudates (wattle gum, eucalypt sap nectar and pollen) (Lindenmayer 2002)

- Sugar Glider – Diet - arthropods, insect and plant exudates (wattle gum, eucalypt sap, nectar, pollen, manna, honeydew) (Lindenmayer 2002)

3. Glide distances are influenced by elevation, tree height, habitat presence , wind speed and direction. The topography of much of the area along Waterford Tamborine Rd and Camp Cable Rd are areas that are low in elevation. Tree heights are generally shorter than in other tall forest areas like Victoria where some glider distance studies have been conducted. Shorter tree heights would influence a shorter glide distance for gliders in the area around Camp Cable Rd and Waterford Tamborine Rd.

9.3 QUOLLS

The precautionary principle must be applied in relation to the possibility of the presence of spotted quolls listed as endangered under the Environment Protection and Biodiversity Conservation Act and Vulnerable under the Nature Conservation Act (see Appendix 1).

1. LACA has concerns about the one off target survey that was conducted over such a short period of time and possibly in the wrong season to optimize sightings of spotted tail quolls. LACA is concerned at the statement that the sighting of the spotted quoll to the west of the project area recorded on the Wildnet data in Figure 11.4 “was most probably a transient individual” (Final IAR p). **LACA believes that this concluding statement cannot be made at this time and that the precautionary principle must be applied in relation to possibility of the presence of this species within the Logan River and Camp Cable Rd area.**

2. In 2006 Dr Scott Burnett (previously WPSQ now at Sunshine Coast University) conducted a survey of community sightings of quolls through Spring Mountain, Greenbank, Munruben, North Maclean and Chambers Flat with funding from Beaudesert Shire Council. Despite numerous community sightings that were reported and extensive follow up in the field, there were no confirmed sightings of quolls (see Figure 11.4 Threatened Species in the Final IAR that records these community sightings). However, confirmed scat was found at Jerry’s Downfall Reserve (Chambers Creek) near Chambers Flat west of the Logan River. The closest sighting to the proposed powerline corridor was recorded approximately 1 km west of Anzac Avenue (see Figure 11.4).

3. Other quoll camera surveillance has been attempted by other researchers since 2006 in the Greenbank Military Training Area with no images recorded of quolls. As quolls are rare and highly (migratory moving up to 21 km in one night) the examples here indicate that a one off survey as conducted by AURECON for Energex would most likely not achieve confirmed sightings of quolls.

4. Timing of surveys

The community sightings of quolls from 2003 to 2006 recorded by Dr Scott Burnett indicated that the greatest number of community sightings were recorded for the months of July and August (during a time when juvenile males would be dispersing) see Table 1. The quoll target survey conducted by AURECON for Energex was conducted in September 2009 during a different month and season to when the most community sightings were previously recorded.

Table 1 - QUOLL SIGHTINGS – MONTHS OF YEAR (Current to 14/08/06)

MONTHS	2006	2005	2004	2003	TOTAL
January					
February	2				2
March	2				2
April	2				2
May	1	1			2
June	0	1		winter*	1*
July	3	2	1	winter*	6*
August	1	1	1	winter*	4*
September					
October					
November		2			2
December		2	1		3
TOTAL	11	9	3	1*	24

Source: Dr Scott Burnett's data from Community Quoll Sightings conducted in 2006 for Beaudesert Shire Council

NOTE:

* 1 sighting reported as winter 2003 and not by individual month

EXCLUDED:

1. Year only results reported for 4 sightings have not been included in table.
2. 1 sighting reported over a period 6/2005 – 1/2006 has not been included.

5. Location of Survey

The locations surveyed for quolls were restricted to the southern survey sites along Camp Cable Rd. No locations along the Logan River were targeted during these September surveys despite one prior Wildnet community sighting approximately 1 km west of Anzac Avenue. Figure 11.4 (Final IAR) records the quoll sightings reported from the study by Dr Scott Burnett to the north of the Logan River at Chambers Flat and one sighting approximately 1 km west of Anzac Avenue at Logan Reserve. There were also sightings recorded to the west of the Logan River at St Aldwyn Rd at North Maclean that were reported in the study. This highlights the need for locations along the Logan River to have been included in the target quoll surveys, however, they were not.

The evidence above, indicates the inadequacies of the short term survey method, seasonal timing and location of sites that have been used in the fauna surveys that were intended to target quolls.

9.4 BIRDS

1. Confirmed wedge tail eagle roost tree at a property at 115 Natalie Rd Buccan.
2. During the VETO and LACA survey of residents, residents reported wedge tailed eagles flying overhead throughout the Camp Cable Rd and Waterford Tamborine Rd sections of the proposed powerline corridor. The Final IAR (p 11-9) notes the problem of birds with large wing span (e.g. wedge tailed eagles and white bellied sea eagles). LACA supports any corridor planning or measures that will reduce impacts on birds with large wing spans.

3. Local residents reported some Glossy Black cockatoo sightings throughout the Camp Cable Rd and Waterford Tamborine Rd area during the VETO and LACA Community Survey conducted from March to June 2010.

10.0 INCREASED BUSHFIRE RISK

Underground powerlines reduce bushfire risk to people and the natural environment. LACA does not agree with the statements that “the project is not inherently susceptible to fire” (Final IAR p 9-4) or that the project “does not increase the risk of bushfire” (final IAR p 9-12). Greater risk to the natural environment, local and regional biodiversity and the public are posed by this proposed powerline project. The greater risk is particularly focused in the Camp Cable Rd and Waterford Tamborine Rd area along the southern section of the proposed powerline.

1. The Final IAR notes the medium bushfire risk (Figure 9.2) to the existing easement south of Camp Cable Rd and areas along Waterford-Tamborine Rd. These sections along the proposed corridor route have a high biodiversity noted in the Final IAR. These sections of the proposed route also have significant koala habitat and rehabilitation areas supported by a high number of resident sightings of koalas confirmed by Wildnet and the 2010 Community Survey conducted by VETO and LACA .
2. Increased risk of bushfire along Camp Cable Rd and Waterford Tamborine Rd will have detrimental impacts on biodiversity e.g. alter vegetation species and increase threat to fauna such as koalas that are already at risk in SE Queensland. The recent bushfires in Victoria in January 2009 were attributed to electrical malfunction along a powerline corridor.
3. Public safety and property is also threatened by bushfire events. The majority of residents along the north and south of Camp Cable Rd can only exit out onto Camp Cable Rd and have no other route of exit in the event of fire. The 33kV line currently running along some of the southern section of Camp Cable Rd already poses an increased risk of bushfire. The location of the existing powerline easement at present along the front of properties means that in the event of fire, residents must evacuate underneath the powerline to exit their properties. The majority of residents have no other exit route other than Camp Cable Rd.
4. Mr Greg Serow at 739 Camp Cable Rd ,who is involved in a local rural fire brigade unit, reported that he had experienced a bushfire event at night in 2009 with the current 33 kV easement where the wires shorted out and the line exploded causing a bushfire.
5. LACA does not believe that this proposed powerline project complies with SPP1/03 Outcome because it has not adequately considered if “no other site is suitable or reasonably available for the proposal” (Final IAR p 9-1).
6. A Bushfire Management Plan should be developed by Energex prior to construction of any powerline project rather than after construction as noted in the Final IAR p9-5.
7. Climate change will alter existing temperature and rainfall patterns and extreme weather events. This has the potential to increase periods of higher bush fire risk that also needs to be accounted for in planning for future infrastructure and development.

11.0 TENURE AND LAND USE CONCERNS

1. Privately owned property is proposed to be used for the sub transmission line . The community is concerned about loss of property rights, devaluing private property, health impacts from EMFs and safety impacts on residents and the general community adjacent to proposed route. Private property should not be used as powerline easements. Infrastructure should be co-located underground on road corridors.
2. There are at least three property owners along Camp Cable Rd or Waterford-Tamborine Rd who have been trying to sell their properties. One property owner on Waterford-Tamborine Rd had their property on the market prior to the announcement of the Energex Loganlea to Jimboomba Upgrade Project. This property owner has documented evidence from their real estate agent confirming the loss of a contract because of the proposed powerline corridor and a request to drop their asking price to \$100 000. Two other residents along Camp Cable Rd who have also tried to sell their properties have also been told to drop their sale price by \$100 000 (Personal communication).
3. The proposed corridor will include State or Local Government land. This is not the highest and best use of State and Local Government land to be used for powerline corridors as this limits other land uses that can be located nearby, due to impacts on public health and safety, and degrades ecological values of the areas and degrades habitat within and adjacent to the proposed corridor route.
4. Use of open space and recreation public land for powerline easements is not the highest and best use of this land in the public interest e.g. Newstead Park (Weaber Rd) and Henderson Street Park (Henderson Street). There is already a shortage of recreation and open space in the South-east Queensland. There is a reserve on the corner of Camp Cable Rd and Edelsten Rd that has significant areas of vegetation and there is an existing Energex easement of approximately 15 metres. This vegetation will need to be removed an additional 25 metres.
5. The Logan River is a valuable recreational and ecological asset that needs to be retained for current and future generations. The tourism potential of the Logan River is yet untapped. With projected population growth in the Mt Lindesay North Beaudesert Area there will be considerable future demand for safe, healthy, scenically appealing recreational and natural areas. Using the Logan River and parks and reserves as powerline easements degrades these existing and potential recreational and natural assets for current and future generations.
6. Loss of good quality agricultural land that is meant to be protected under the SEQRP. Some landholders within the corridor of the proposed sub transmission line have stated that the powerlines are proposed to go through some of their best paddocks. Farmers are also concerned about increased safety risk to livestock during construction, maintenance of the lines and at flood times. Livestock owners are concerned about the safety and wellbeing of their stock.
7. Farmers are also concerned about the impact on their own health and safety. LACA notes that the concerns of irrigators have still not been resolved.

8. LACA is very concerned that Energex's MOU with DERM allows remnant vegetation clearing on State owned land which can be cleared by Energex without a development permit (Final IAR p 8-5). Two significant vegetation areas along the proposed route are Logan Village Reserve on (near Anzac Avenue and Water Tamborine Rd intersection) and the reserve on the corner of Edelsten Rd and Camp Cable Rd. Both Reserves have significant diversity of wildlife sightings being reported from the community. Logan Village Reserve has koala presence and the Edelsten and Camp Cable Rd Reserve have greater glider sightings, koala sightings, echidna and this reserve is located in the vicinity of fauna survey site G2 where a great variety of fauna species were recorded such as the yellow footed antechinus and koala (Appendix H 4).

9. LACA is concerned about the EMFs and health related concerns with the proximity of the proposed easement upgrade to the Jimboomba Scout Den on the reserve near the corner of Camp Cable Rd and Edelsten Rd .

10. LACA supports Offsets being secured via mechanisms such as a covenant or conservation area status to protect the vegetation from future clearing (see p 8-6).

12.0 INFORMATION NOT PROVIDED TO THE COMMUNITY

1. Although fauna corridor rehabilitation plans are being considered, "at this point , no thorough investigation has occurred into potential sites along the proposed sub transmission line corridor that would be ideal for the application of a POSLP or fauna corridor rehabilitation plans" (Final IAR p 14-50) .

2. The topography, soil , geology, Acid sulphate soils , soil erosion and salinity hazard that has been completed to date is desktop only that has had no ground truthing or field assessment (p 7-1) . Acid sulphate soil information is not included in the Final IAR for the community and will not be conducted until the detailed design phase. Acid sulphate soils could occur in the project location (Final IAR p 7-4)

3. Poles

- The final pole locations have not yet been decided and minor changes to location can still occur within the proposed easement. Final pole designs have still not been finalized.
- "Energex will determine at detailed design which solution will be selected to construct the poles located within the floodplain. The foundation of the poles within the floodplain of the Logan River will be engineered to withstand potential flood waters and surface inundation" (Final IAR p 3-12)
- Green pole location – "the poles to receive this treatment will be determined prior to the construction phase but will be targeted in areas with vegetated backdrops" (Final IAR p 3-15)
- "additional changes may be made in the detailed design phase such as minor changes to pole locations to accommodate site specific considerations such as topography, water bodies and the need to avoid particularly sensitive vegetation... any minor changes to pole locations will be contained in the easement area " (Final IAR p 3-16)

4. Flood Hazard Evacuation Plan

5. Bushfire Management Plan

6. Full details of Offset Package – at present there are references throughout the Final IAR in various chapters e.g. Chap 4, 8, 11. There is no one section that outlines this clearly for the public.

13.0 LACK OF CO-LOCATION OF INFRASTRUCTURE AND LONG TERM PLANNING

1. Although the alignment does not cross any Master Planned Area (Final IAR p 4-11), it is immediately north-west of Yarrabilba which is a Master Planned area that has been declared a UDLA to be fast tracked.

2. The SEQRP 2009-2031

The SEQRP recommends that (p125) “significant cost and service efficiencies can be achieved by improving coordination among individual infrastructure agencies and among infrastructure , land use, and economic planning agencies”.

Energex and Main Roads continue to ignore the request by the community to co-locate infrastructure and place powerlines underground which could achieve better long term planning outcomes, with greater social , economic and environmental outcomes. The SEQRP p 125 states “ *Significant cost and service efficiencies can be achieved by improving coordination among individual infrastructure agencies and among infrastructure , land use and economic planning agencies.*” and “ *Co-locating infrastructure has the potential to reduce the need for new infrastructure sites and corridors, thereby reducing the overall cost to the community* (SEQRP p 126). How can this be achieved if agencies will not discuss these concerns to facilitate better social , environmental and economic outcomes?

Co-locating infrastructure has the potential to reduce the need for new infrastructure sites and corridors, thereby reducing the overall cost to the community (SEQRP p 126)

Energex is not planning for the long term acquisition of sites and corridors and is not meeting Policy 10.5.2 in the SEQRP “Identify preserve and acquire sites and corridors for substations, easements and other necessary energy infrastructure “(SEQRP p 127).

Energex is only planning for short term energy needs in this proposed powerline route . Energex is not taking into consideration that Yarrabilba will need its own substations. Energex is not meeting Policy 10.5.3 in the SEQRP to “Ensure energy infrastructure agencies address long term regional energy needs”(SEQRP p 127).

3. Logan City Council initiated a meeting with Main Roads and Energex earlier in 2010 to discuss alternative options for the proposed powerline route. Energex claim they were willing to discuss the co-location of the proposed powerline corridor along Waterford Tamborine Rd as suggested by Logan City Council. However, Main Roads was not ready to enter into discussions about this possibility. LACA recommends that Energex approach Main Roads again to investigate the possibility of locating the powerlines underground along the road corridor.

4. Preserving corridors and sites at an early stage – Where is the long term planning by Energex to secure corridors and sites ahead of time? There is no corridor now along the

Logan River and the community does not support the use of the Logan River as a current or future powerline easement. The residents along Camp Cable Rd have been given no indication by Energex that the easement to the south of Camp Cable Rd will need to be upgraded further in the future.

5. Loss of Scenic amenity

14. PUBLIC HEALTH CONCERNS

LACA shares the valid concerns of the community in relation to public health concerns, EMFs and powerlines. The community has indicated a preference for Energex to put powerlines underground because of community health concerns from EMFs . LACA supports underground powerlines along road corridors.

15. CULTURAL HERITAGE

LACA supports the completion of cultural heritage surveys and the involvement of all relevant Aboriginal parties in this process.

16. COMMUNITY CONSULTATION CONCERNS

1. LACA is very concerned at the short 15 day timeframe for the community to review the Final IAR document that is 5 volumes in length. This is an unrealistic timeline that should be extended.
2. All community consultation phases have been timed during school holidays
 - Draft IAR June to 3 July 2009
 - Supplementary IAR 17 March to 8 April 2010
 - Final IAR June to 9 July 2010

This timing by Energex disadvantages the community because many families may not be at their place of residence, may not have the time to read the final IAR documents because of family responsibilities and may not be able to access the Final IAR or may not be able to lodge a submission as a result of the timing of the consultation.

3. During the consultation for the Supplementary IAR (March /April 2010) I was informed by Energex people that only people who were on their current mailing and contact list were contacted to be alerted to that consultation phase. I requested 250 copies of the Energex pamphlet which I received and then delivered to local residents, many of whom were not directly affected, but lived in the vicinity of Camp Cable Rd , Waterford Tamborine Rd, near Anzac Avenue and the proposed powerline corridor . Many of these residents were not aware of the network upgrade being proposed and had no idea where the powerline corridor was being proposed for.

4. LACA is concerned that at the Energex community display (held at Chambers Flat Community Hall in May 2009) residents were instructed by Energex officers to fill in forms they had on the day and told residents that these comments would be regarded as their submissions. When concerned residents questioned this, they were told that no an additional submission would need to be done during the official consultation period. These residents were misled by Energex officers.

3. Consultation with traditional owners to date is still incomplete.
4. People who do not have computer skills or access to computer technology are disadvantaged in this consultation process.

7. People who do not have English as a first language are disadvantaged in this consultation process.
5. The lack of information being provided by Energex to non directly affected people who live adjacent to the proposed powerline corridor.

Submission to the MLNBSA study
Identifying and mitigating against impacts on populations of
the Endangered Spotted-tailed Quoll in the MLNBSA

12th April 2006

Dr. Scott Burnett (Quoll biologist)

Wildlife Projects Officer

Wildlife Preservation Society of Queensland

1. Summary

- I. It is now known (since June 2005) that a population of the Endangered Spotted-tailed Quoll occurs within the MLNBSA.
- II. In lieu of further data, the precautionary principle dictates that all remnant vegetation in the MLNBSA be viewed as potential Quoll habitat, and mitigation measures implemented as such.
- III. The precautionary principle dictates that until targeted studies are undertaken, the Greenbank - Spring Mountain /Teviot Range - Border Ranges corridor, and the Greenbank - Tamborine-Border Ranges corridor be considered essential inter-population linkages for Quolls, and actions taken to maintain them as such.
- IV. Regional planning instruments provide grounds for classifying remnant vegetation within the MLNBSA as Essential Habitat for Spotted-tailed Quoll, by the EPA.
- V. The North Beaudesert OUM Plan proposes to replace large areas of native vegetation (and potential Quoll habitat) with housing estates, enterprise precincts and linear service infrastructure.
- VI. The North Beaudesert OUM Plan will cause fragmentation of potential inter-population linkages identified above (III). Fragmentation of the MLNBSA Quoll population, and the hypothetical Border Ranges-Greenbank meta-population, will result from clearing, development and subsequent impermeability of housing estates, enterprise precincts and linear service infrastructure to movements by Quolls.
- VII. State, Regional and Local Bioregional corridors in the MLNBSA must be re-evaluated, including the addition for Norris Creek to Greenbank to Greenbank Military Training Area, and a corridor along Chambers Ck.
- VIII. A direct result of increased business and residential populations will be increases in traffic and of road infrastructure. This will create a major and probably unsustainable mortality sink for Spotted-tailed Quolls in the area, which are

expected to be killed on the areas roads at ever increasing rates as the area develops.

- IX. A direct result of proposed urban communities in Park Ridge, Boronia Heights, Greenbank Central, New Beith, Flagstone and Undullah will be larger numbers of dogs in the area. Even when contained in backyards, this will result in an increased kill rate of Quolls. Our surveys to date suggest that backyards in the region are regularly visited by Quolls.
- X. It is likely that increases in the residential/bushland edge will result in an increase in wild dog incidents and calls for council control of wild dogs in adjacent natural areas, especially in the Flagstone/Undullah area. Control by 1080-baiting is likely to be sought and may impact on Quoll populations.
- XI. An increase in the number of householders in the area, and our documentation of Quolls visiting local backyards here, suggest that interactions between Quolls and humans will increase. We would therefore also expect the incidence of hostile interactions to increase.
- XII. Constraints mapping needs to be rerun using information on Quolls already collated by the community, and including any subsequent information collated as a result of further Quoll studies conducted within the MLNBSA.
- XIII. As a general consideration, and in lieu of further data, provisions must be made to maintain current areas of remnant vegetation as open space (conservation) areas, and to maintain and enhance existing wildlife corridors.
- XIV. A comprehensive regional survey of Spotted-tailed Quoll populations within and adjacent to the MLNBSA and Quoll management plan are required in order to adequately address concerns regarding impacts of the North Beaudesert Plan on Spotted-tailed Quoll populations. These must be undertaken prior to any further planning or on-ground works are undertaken.

2. Background

The Spotted-tailed Quoll *Dasyurus maculatus* is a carnivorous marsupial of the family Dasyuridae. It is the largest surviving marsupial carnivore on mainland Australia, and as such plays an integral role in ecosystem processes. Like most top order carnivores the species is also particularly prone to localized extinction due to habitat disturbance, direct persecution and indirect affects.

Not surprisingly then, Spotted-tailed Quolls are classed as Vulnerable, Threatened or Endangered in all mainland Australian states in which they occur (i.e. South Australia, Victoria, New South Wales and Queensland). The species is classed as Vulnerable in south-east Queensland under the provisions of the *Queensland Nature Conservation (Wildlife) Act 1992*. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, lists the species as Endangered.

3. MLNBSA as Quoll habitat

Until June 2005, the Spotted-tailed Quoll was thought to be extinct in the Greater Brisbane area. Quolls had not been known from the area since 1956.

On 5th July 2004, Munruben local Ivell Whyte picked up a roadkilled Spotted-tailed Quoll on the Centenary Highway off-ramp at Carole Park. At the time, experts assumed that this animal was most likely a stow-away which had hitched a ride on a vehicle coming in from the Granite Belt or Border Ranges area. However, on the 21/6/05, Ivell Whyte picked up another roadkill, this time from the Mt Lindesay Highway in Munruben. This second roadkill (which now resides in the Queensland Museum), indicated that there was a population of Quolls in the district. This prompted a survey amongst the local community which, over a three month period from January-April 2006, resulted in a total of 22 contemporary Quoll sightings being collated from the Mt Lindesay North Beaudesert Study Area (MLNBSA) (see Attachments A and B).

The spatial extent, numerical size, movements, and residency status of the Spotted-tailed Quoll population in the MLNBSA remains unknown. As such it is impossible to pin

down the key habitats and movement areas used by Quolls in the area. **In lieu of further data, the precautionary principle dictates that all remnant vegetation in the MLNBSA be viewed as potential Quoll habitat, and mitigation measures be implemented to protect it.**

Similarly, there is no specific information regarding linkages and movement corridors between the MLNBAS Quoll population and the nearest other Quoll populations in the Border Ranges and environs (the Greenbank-Border Ranges meta-population), to the south. Two such potential corridors can be inferred from aerial photography:

- (i) one to the south-west from Greenbank Military Reserve through Spring Mountain, Flinders Peak, Teviot Range and thence into the Mt Barney/Border Ranges Quoll populations, and,
- (ii) another to the south-east from Greenbank Military Reserve through Mt Tamborine and thence to the Border Ranges/Lamington Plateau Quoll population.

The precautionary principle dictates that until targeted studies are undertaken, these corridors be considered essential inter-population linkages and actions taken to maintain them as such.

4. Potential impacts of the North Beaudesert OUM plan on Quolls

The very short life-span (i.e. about 3 years) and low breeding rate (i.e. 1 litter of no more than 6 young/year) means that Quoll populations can not sustain consecutive years of low recruitment, or sustained levels of unnaturally high mortality. This, coupled with the species wide-ranging behaviour (i.e. animals forage over several kilometers/night), and their opportunistic foraging (i.e. Quolls eat everything of animal origin ranging from rancid roadkill to caged poultry, meaty household scraps and pet food to rodents and possums), means that individuals are very susceptible to encountering hostile environments such as roads and households. The high extinction proneness of Quoll

populations also require that inter-population linkages be maintained and enhanced where possible, to ensure the long-term survival of the MLNBSA quoll population.

This combination of life history strategy, feeding and ranging behaviour has led to Spotted-tailed Quolls becoming one of the most susceptible Australian species to the intensification of land-use and to offsite effects resulting from development. In particular, roads and urbanization in areas adjacent to Quoll habitat can take an immense toll on Quoll populations (see below).

Research suggests the following specific threats to Quoll populations in general, and within the MLNBSA in general:

(1) *Habitat loss*

The North Beaudesert OUM Plan proposes to replace large areas of native vegetation (and potential Quoll habitat) with housing estates, enterprise precincts and linear service infrastructure.

Habitat loss is the single greatest threat to any wildlife species. Being at the top of the food chain, Spotted-tailed Quolls are particularly affected by habitat loss, both because of their large spatial requirements (i.e. about 500 – 1000ha per animal), and because of their dependence on a diverse and abundant mammalian prey community. Therefore even habitat change which results in nothing except the loss of tree hollows will affect Quolls through a decline in possum populations.

Female Quolls have specialized denning requirements during the period of litter rearing. Maternity dens are usually found within tree hollows and rock piles. They are usually characterised by a long and narrow entrance tunnel into a larger nursery chamber. These are not common landscape features, and their loss may render an area unsuitable to Quolls, even if other factors such as food are present.

The SEQ Regional Plan sets out Indicators of the Natural Environment (Table 3, p.25). These include Extinct, Endangered and Vulnerable species and ecological communities. The presence of populations of the Spotted Tailed Quoll, and other Rare and Threatened species (e.g. Glossy Black Cockatoo, acid frog *Crinia tinnula*, Koala and others still being collated), therefore provides **grounds for classifying remnant vegetation within the MLNBSA as Essential Habitat by the Qld EPA.**

(2) Habitat fragmentation

The North Beaudesert OUM Plan will cause fragmentation of potential inter-population linkages via the Spring Mountain/Teviot Range area to the south-west and through the Munruben/Logan area to the south-east. Fragmentation of the MLNBSA Quoll population, and the hypothetical Border Ranges-Greenbank meta-population, will result from clearing, development and subsequent impermeability of housing estates, enterprise precincts and linear service infrastructure to movements by Quolls.

Habitat fragmentation occurs as a result of partial clearing of the landscape, such that not all remnant vegetation is removed, however fauna access between these remnants is greatly reduced such that fauna populations become fragmented which in turn results in lower numbers in each new fragmented population and increases the risks of extinction through inbreeding and stochastic events.

There are also precedents (existing Essential Habitat Mapping and Beaudesert Shire Council Biodiversity Mapping Map PM 31A) for State, Regional and Local Bioregional corridors in the MLNBSA to be re-evaluated, including the addition for Norris Creek to Greenbank to Greenbank Military Training Area, and a corridor along Chambers Ck.

(3) Roadkill

Green and Scarborough (1990) attribute the majority of human induced mortality of the species in Tasmania today to road kills. In Queensland there are fewer data, but many

Quolls are reported to authorities as roadkill. Tasmanian researchers found that local populations of two Quoll species, the Spotted-tailed and Eastern Quolls became extinct following the development of a high speed road environment through Quoll habitat in Tasmania.

Quolls spend a lot of time on roads, where they forage for roadkills. They also use roads as sites for scent marking.

Quoll roadkills are known to have occurred in the MLNBSA at Mt Lindesay Highway, Teviot Rd, Greenhill Rd, and Goodna-Springfield Rd.

A direct result of increased business and residential populations will be increases in traffic on existing roads and development of new road infrastructure in particular, the OUM proposes new road investigations for a Gateway Motorway extension that will link up to Chambers Flat Rd and Crowson Lane, as well as two road investigations for New Beith and Flagstone area west of the interstate rail line at present.

This will create a major and probably unsustainable mortality sink for Spotted-tailed Quolls in the area, which are expected to be killed on the areas roads at ever increasing rates as the area develops.

(4) Domestic dogs and cats

A direct result of proposed urban communities in Park Ridge, Boronia Heights, Greenbank Central, New Bieth, Flagstone and Undullah will be larger numbers of dogs in the area. Even when contained in backyards, this will result in an increased kill rate. Our surveys to date suggest that backyards in the region are regularly visited by Quolls at present.

Dogs rarely prey on Quolls in natural situations, where Quolls can readily escape up trees and into rockpiles. In more open, modified landscapes, Quolls can be trapped in open areas and killed by dogs. Dogs rarely eat the Quolls they kill.

Adult Cats and Quolls are evenly matched as combatants and probably rarely come into direct conflict. However, young Quolls have been known to be killed by cats and vice versa, Quolls have been known to hunt kittens.

(5) Poisoning

1080 baiting

It is likely that increases in the residential/bushland edge will result in an increase in wild dogs incidents and calls for council control of wild dogs in adjacent natural areas, especially in the Flagstone/Undullah area. Control by 1080-baiting is likely to be sought and may impact on Quoll populations.

Circumstantial evidence suggests that accidental poisoning of Quolls occurs when they ingest baits laid for wild dog control (e.g. Belcher 1996), although there is also evidence to the contrary (Cremasco unpublished data). Although Quolls are more resistant to the effects of 1080 than dogs and foxes, the amounts of 1080 used in meat baits in Queensland is still potentially high enough to result in massive mortality.

Secondary poisoning

An increase in the number of workplaces and households in the Park Ridge, Boronia Heights, Greenbank Central, New Beith, Flagstone and Undullah areas is likely to result in increases in the number of people using rodenticides, and an increase in the number of poisoned rats available for scavengers (including Quolls) in the environment.

An unknown but potentially very significant impact on peri-urban Quoll populations is secondary poisoning when they consume rats which have been poisoned in domestic households and in places of business. Quolls are inveterate scavengers which naturally consume living and dead animals. There may also be other secondary poisoning risks associated with suburbia (e.g. Blue-tongue Lizards are known to die from eating poisoned

snails and its unknown if this poison would affect Quolls which subsequently consume these blue-tongues).

(6) Hostile landowners

An increase in the number of householders in the area, and our documentation of Quolls visiting local backyards here, suggest that interactions between Quolls and humans will increase. We would therefore also expect the incidence of hostile interactions to increase.

Deliberate killings of Spotted-tailed Quolls occur in retaliation for their depredations upon domestic poultry and other pets, and to a lesser extent, when they enter houses, scavenging for food and food scraps.

Of 152 collated records of *D. maculatus* in Queensland, 91 were of animals that were found at poultry yards or scavenging around houses. The predilection of *D. maculatus* for poultry has been noted in many instances dating back to Goulds' observations from the late 1800s (Gould 1974). In this monograph he describes the species as, "a most dreaded enemy to poultry: it is consequently regarded by the settler as one of his greatest pests" (p110). A common theme during the closer settlement of Quoll habitat is of immediate Quoll depredations upon poultry, retaliation against Quolls and rapid disappearance of *D. maculatus* from those areas (e.g. Lunney and Leary (1988), Bennett (1990)).

Museum records also indicate that Quolls attack aviary birds and house cats.

5. Recommendations: Mitigating Potential Impacts

The magnitude and geographical locus of potential impacts identified above can not be defined at present; there is insufficient information on the distribution and movements of Quolls in the MLNBSA and adjacent areas. **Therefore I submit that a comprehensive**

regional survey of Spotted-tailed Quoll populations within and adjacent to the MLNBSA be undertaken prior to any further planning or on-ground works are undertaken. These surveys are to include studies of population demography, movement patterns, and key resource areas e.g. den sites, foraging areas.

I note also that Spotted-tailed Quoll habitat was not one of the filters used in the constraints mapping study, and so submit that **constraints mapping should be rerun using information already collated by the community and any subsequent information collated as a result of further studies conducted within the MLNBSA.**

As a general consideration, and in lieu of further data, **provisions must be made to maintain current areas of remnant vegetation as open space (conservation) areas, and to maintain and enhance existing wildlife corridors.**