KOALA KOALITION
ECONETWORK PORT STEPHENS INC.

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4th August 2023

Dear Sir,

OBJECTION DA 16-2023-338-1
PAN Number: PAN-343637
Battery Energy Storage System (BESS) and associated shed structures, 994 Clarence Town Road, Seaham
APPLICANT: HUNTER DEVELOPMENT BROKERAGE PTY LIMITED
CONSENT AUTHORITY: Hunter and Central Coast Regional Planning Panel

When KKEPS members approached this proposal, it was confused with the large RES Battery sensibly proposed on mostly cleared land on Clarence Town Road near Wighton Street, adjacent to the substation at Seaham. The developers of that BESS have been discussing their plans with local residents and in particular our colleagues from VOWW.
This current application, however, is on a private rural property within a known habited koala corridor. This proposed site is RU2 zoned land on the eastern edge of the Hunter-Central Coast Renewable Energy Zone (REZ) [1] and almost opposite the entrance to the Brandy Hill Quarry.

We have been advised that the State Government can overrule on environmental issues associated with this application which is causing some concern amongst interested parties wishing to comment on potential environmental impacts in their submissions. For a number of reasons, we ask that environmental concerns are taken into consideration; that there are already environmental restrictions in place for other development in the area and that this application seems to fall outside of permitted development.

We are aware that this project relates to electricity storage and is therefore defined under s2.45 of the SEPP (Transport and Infrastructure) 2021 Act, as 'electricity generating works'. This means that under s2.36 of the Act the development "may be carried out by any person with consent" on "any land in a prescribed rural, industrial or special use zone", [2] now known as "prescribed non-residential zone". [3]

In the Port Stephens Local Environmental Plan 2013 this site is zoned as RU2 Rural Landscape. [4] In the current version of the Port Stephens Local Environmental Plan 2013 legislation, [5] the list of activities permitted with or without consent does not include generating or storing electricity. Instead, the objectives of land zoned RU2 include enhancing the natural resource base and maintaining the rural landscape character. *Prohibited activities* include those not listed as permitted with or without consent. We would expect any proposed development in the RU1 and RU2 zones to be subject to detailed assessment that considers environmental values.

A recent extension to Brandy Hill Quarry, approved by the former Environment Minister Sussan Ley, has required that hundreds of koala trees are planted to try to rehabilitate land recognising that koala habitat will be destroyed by the expanded mining operations.

Property owners near to this proposed BESS are not permitted to clear or build due to the impact it would have on the local koala population and are expected to be protective of the environment and this endangered species.

Given the above, we feel it is still necessary to share our concerns on potential environmental impacts as they could be detrimental to nearby residents as well as wildlife.

Cumulative impacts – site assessment on unique features and bigger picture
This application makes brief mention of other sites and states that the "potential impact of the facility is minimal and that all sites will be the same". KKEPS strongly disputes this claim. While the layout of each proposed site may be the same, the environmental impact will vary significantly depending on the exact location and biodiversity of the sites. If the applicant has more than one proposed site, we suggest that the overall "hive" project should be considered as a State Significant Development and go through more rigorous assessment.

We are aware that this application is for one of TEN of 35 proposed Hunter Central-Coast REZ Battery Energy Storage Systems, expected to be constructed within the Lower Hunter, six of which will be in the Port Stephens LGA. Without knowing the other proposed locations, the cumulative impact cannot be assessed nor commented on by concerned residents, interested parties and local representatives.

Much more rigorous economic, environmental, and social impact requirements and consultation with community members is needed for the plans to have multiple BESS sites in the area. The applications should be assessed at the same time as together they will have a cumulative effect on the landscape and the character of the rural area where people have chosen to live. The local community should be told where the other proposed BESS installation sites are located as this information may make a difference as to how people perceive the impact upon them socially, and whether their community's health and welfare will be affected.

Economic benefit
While this project may help the Hunter region store and manage renewable energy, there otherwise seems to be little economic benefit to the area as the installation is to be built offsite, there is to be no staff, and monitoring is limited to once or twice a month.

Although this type of application is a Regionally Significant Development with a stated capital investment value for each site of approximately $16.9 million, we agree with VOWW that "this BESS hive does NOT stimulate economic development for this local area. It needs to be called out for what it is…a profit-making concern for a company not situated in the Port Stephens LGA. It does not promote or complement agriculture in any way."
The BESS proposal is not in any way compatible or supportive of rural land use.

Noise pollution
The project site for this application is on private rural property and, therefore, must be subject to regulations that "home businesses should not involve interference with the amenity of the neighbourhood because of **emission of noise**, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, wastewater, waste products, grit or oil, traffic generation or otherwise."

The Noise Test report states that a continuous noise in the region of 79dB can be expected within 1 metre of the storage system. To put the level of noise into context, it is louder than being kerbside on a busy street and may seem louder in certain environmental conditions such as colder temperatures and on windy days. If the level was to increase to 90dB for any reason, the level would be equivalent to using a jackhammer.

KKEPS submits that this profound change of use in the area to allow frequent noise pollution would be unacceptable in biodiversity terms and to local residents. We are of the opinion that a full acoustic report is required to fully understand what effect this will have on nearby homes particularly as research is available that proves the severe effect of noise on wildlife. Aerial images suggest that the BESS will be located closer to the neighbour's house rather than the property on the BESS site. Has the site been chosen because of concerns about the constant noise?

There have been many studies on how noise can negatively impact wildlife by causing a stress response that can prevent communication and breeding as well as induce disease and cause local extinctions. Blickley and Patricelli (2010) found that:

"[Background noise] can impact wildlife species at both the individual and population levels. The types of impacts run the gamut from damage to the auditory system, the masking of sounds important to survival and reproduction, the imposition of chronic stress and associated physiological responses, startling, interference with mating, and population declines." [6] This included negatively impacting territorial and social communication between individuals and not hearing predators approach. They also found that animals may suffer chronic effects, including elevated stress levels and associated physiological responses. In the short term, elevated stress hormones can result in an elevated heart rate but longer term can make individuals more prone to disease, less likely to successfully reproduce and can decrease their life expectancy. [7]

Of particular note given the presence of threatened species recorded on site and in the area is the mention that: "the cumulative impacts of noise on individuals can manifest at the population level in various ways that can potentially range from population declines up to regional extinction. If species already threatened or endangered due to habitat loss avoid noisy areas and abandon otherwise suitable habitat because of a particular sensitivity to noise, their status becomes even more critical." [8] The ability to tolerate introduced noise, however, will vary by species and by situation. The study suggests that "the ability to tolerate noise may vary with reproductive status, prior exposure to noise, and the presence of other stressors in the environment." [9]

A study by Narayan et al looked at stress responses in koalas. While koalas spend around up to 20 hours a day resting or sleeping, they found that hypervigilance has been demonstrated in response to human presence/noise, impacting koala reproduction, their growth, their immune system and can create an energy/water/thermoregulation." [10]

It is well documented that stress can induce symptoms of the potentially fatal disease chlamydia in koalas. The more stressors, the more likely that koala will become sick. Koalas in the Seaham area are already subject to stressors such as habitat clearance, vehicles, humans, domestic dogs and foxes, as well as climate pressures such as drought impacting their hydration level.

A 2015 article by Shannon et al looked at the effects of noise on wildlife. It found that "terrestrial mammals exhibited increased stress levels and decreased reproductive efficiency at noise levels between 52 and 68 dBA SPL (re 20 μPa). Traffic noise exceeding 60 dBA SPL (re 20 μPa) impacted the vocal behaviour of male anurans and traffic noise exceeding 80 dBA SPL (re 20 μPa) reduced the foraging efficiency of gleaning bats".[11] These results suggest that wildlife is negatively impacted by noise pollution at a lower level than expected to be produced at the proposed site.

While the research papers admit that wildlife responses to noise may vary between species, as a koala carer for over 13 years I can confirm the findings by Narayan et al (2016) [12] and Whisson et al (2022) [13] that koalas most certainly have a stress response to noise and human activity and that it not only impacts their mating, but also their reliance on acoustic communication with others in their surrounding population group. Koalas have a hearing ability well in excess of that of humans which is necessary if they are to find mates within their territorial ranges.

KKEPS is of the opinion that the prolonged noise of the BESS will affect koalas' ability to communicate with others both to find a mate and advertise their presence to warn off other koalas to prevent fights over territory. While not located on site as we may have expected, nor considered in the application, hunting night birds such as the Endangered Powerful Owl, the 'mopoke' calls of the Boobook Owl, and the tawny frogmouth could also be impacted by noise pollution.

An article by Sordello et al warns that for decades, "noise regulations have focused primarily on the disturbances for humans, but we expect that public policies for biodiversity conservation will start to pay more attention to this threat" and that "public authorities and practitioners will have to mitigate in the coming years". [14]

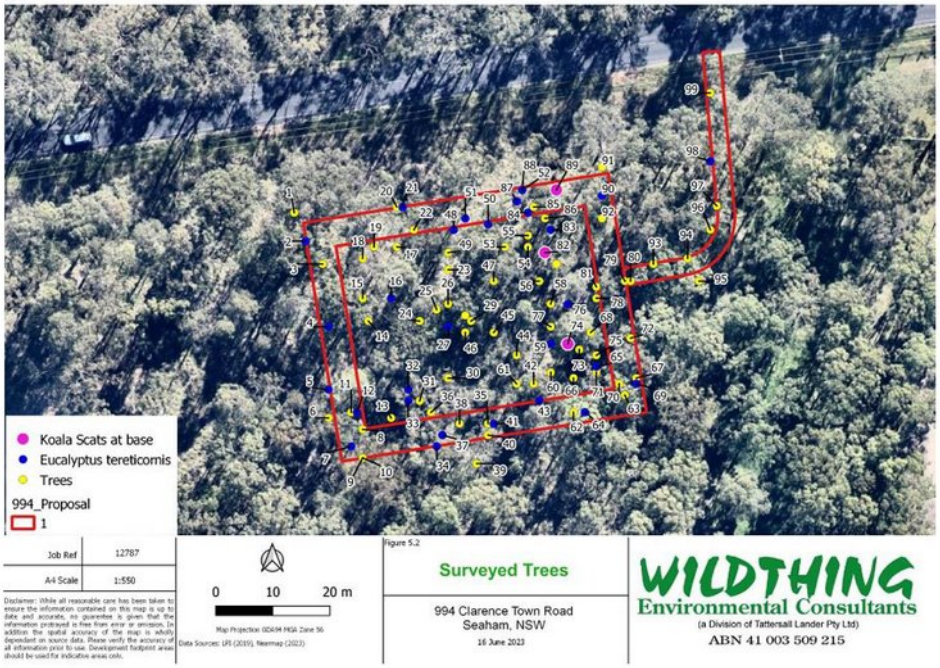
The koalas' response may be to vacate the area to avoid the noise, but there is precious little safe alternative habitat for them in the area. Leaving their normal habitat range may increase the risk of deadly threats, such as vehicles and dogs, or heading to the surrounding suburban area where there is no food for them. Such a move has already been documented; in 2010, research using radio collars showed that a group of koalas moved away from a festival site in New South Wales and only returned after the festival ceased. Concerns were expressed on any long-term impact of the noise pollution that drove them away.[15] This should not be able to happen in an area of well-defined koala habitat/corridor when there is so much evidence of the noise impact on koalas.

KKEPS does not believe that the benefits of the proposed development outweigh the impact of noise on the local community and biodiversity.

Habitat importance

The Ecological Assessment Report (EAR) by Wildthing acknowledges that the proposal will require the "[r]emoval of known habitat for a number of the addressed threatened species". The report states that the proposal will result in a small incremental reduction of PCT 3433, the EEC Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and known habitat for three threatened species; *Phascolarctos cinereus* (Koala), *Petaurus norfolcensis* (Squirrel Glider) and *Miniopterus australis* (Little Bent-wing Bat) that were all identified during minimal ecological surveys by WildThing. [16]

To be more specific, a tree survey was undertaken by HDB in the 994_1 section of the 22163 BESS entities boundary area. PCT 3433 Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest was correctly identified as Preferred Koala Habitat. A total of 99 native trees were recorded which included *Eucalyptus tereticornis* (Forest Red Gum), a named preferred koala feed tree (PKFT) in the Port Stephens CKPoM. Three trees were found to have koala scats at the base, numbers 74, 82 and 89. It is expected that all trees will require removal. [17]



KKEPS is of the opinion that this site is incompatible with a planned clearance of 99 trees within an area of preferred koala habitat, i.e. PCT 3433.

The EAR states:

"The proposal will result in the removal of approximately 0.244ha of **Preferred Koala Habitat**. No areas of habitat are likely to become significantly fragmented or isolated from other areas of habitat as a result of the proposed action. A number of recommendations including the **retention of Preferred Koala Habitat wherever possible**, planting of compensatory Koala Feed Trees and allowing the safe movement of koalas through the site have been given to help reduce the impact of the development on the koala." [18]

Regarding the statement that "**No areas of outstanding biodiversity value are within the study area**" we are aware that this area is part of wider landscape corridor which is important for wildlife surviving climate change as the corridor leads to forests in higher, cooler altitudes.

a) 

b) 

In image a) from the KKEPS Data Viewer, the darker blue polygons represent current koala habitat. The lighter blue areas represent conservative areas that will become important if koalas are to adapt to climate change.

Image b) from the KKEPS Data Viewer identifies a range of connectivity types around the Brandy Hill quarry including from the southern edge of Clarence Town Road where the subject site is located. There is a recognised connectivity block where the access road allows traffic in and out of the quarry site which means any connectivity between habitat north of the road and south of the road is important for koala movement.

We support VOWWs observation that the trees on site are in good condition. VOWW suggests that while the trees are relatively young, if left undisturbed they will become even more important for the future diversity of canopy trees. VOWW believes that “this is not a degraded area but a worthwhile habitat which would support any number of birds and native animals. Within the 20-year lifespan of the proposed BESS these trees would have reached maturity”.

As *Eucalyptus fibrosa* (Red Ironbark) is present in the subject site and with the area being located within the Sydney Basin bioregion, we are of the opinion that this constitutes part of the Endangered Ecological Community – “Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions”. This community is dominated by Spotted Gum *Corymbia maculata* and Broad-leaved or Red Ironbark *Eucalyptus fibrosa*, while Grey Gum *E. punctata* and Grey Ironbark *E. crebra* occur occasionally. [19]

Although the Spotted Gum is not identified as a preferred food tree in the Port Stephens CKPOM, it is an important food and shelter tree to koalas in this area. Female koalas pass on to their young a specialised gut flora (microbiome) particular to the species of trees available in their local territory;

koala use of Spotted Gum in this forest is evidenced by the scratches and scats left by koalas and listed by Wildthing in their survey table. [20]

The Wildthing EAR admits that limited surveys only undertaken in winter may not have identified all the threatened/endangered species that are likely to have been found. [21]

Given how difficult it can be to detect koalas without a variety of search techniques and without surveying over various time periods, such definite evidence of koalas in the area after only ten hours of surveying over 3 days in June 2023 should have been taken as evidence that the site that should be preserved, rather concluding that "a small number of koalas make occasional use of the site."

We suggest that independent, i.e. not commissioned by the proponent, varied survey techniques including drone surveys, scat sniffer dogs and systematic acoustic surveys be undertaken to inform priority conservation areas for koalas in Port Stephens and surrounding areas.

Habitat clearance

We commend plans to search for fauna including koalas pre-clearance, allowing koalas time to naturally vacate the area before clearing commences, and to restrict speed on site to 20km/h. We cannot, however, support the plans to clear the site for the installation and for the driveway/ access road as any habitat removal will impact the koala corridor.

The report does not mention the removal of the vegetation needed for the driveway/ access road and presumably this area needs to be considered together with the trees being removed for the BESS site itself. We suggest, therefore, that the footprint of the proposal is actually larger than identified in the report.

We would also like some clarification as to what vegetation would need to be cleared for any vehicles transporting materials for installation. One would assume that a crane would also be needed to lift the batteries into place. To our knowledge, none of this has been documented in this report. Does there also need to be a turning bay for any trucks and cranes for the installation of the BESS?

In addition to this, once the land in question is cleared and fences erected around the BESS, any wildlife moving around the site will be at risk of straying onto Clarence Town Rd as they use the narrow corridor left between the site and the road. The proposal will create a higher potential for koala vehicle strike fatalities than exists at present.

We also have concerns that more vegetation will need to be cleared between the BESS and the grid, regardless of whether the connection to the grid is above-ground or underground. Presumably for any above-ground wires, vegetation will need to be cleared away from the lines in order to comply with safety regulations.

The removal of 99 trees (many with hollows) within a known koala region (and area with other threatened species including squirrel gliders and little bent-wing bats) is unacceptable.

Clearing koala habitat to store renewable energy does not seem the best environmental solution.

KKEPS strongly suggests that a more suitable, already cleared site closer to the substation should be found instead, or another already cleared site on the property closer to Brandy Hill Drive.

The suggestion within the Biodiversity Assessment to overcome the koala feeding tree loss by planting ‘two for one’ does not consider the time lag needed for any new trees to become mature. We could not find a landscape plan or vegetation management plan identifying where the proponent suggests the trees could be planted. If planted nearer the dwelling, asset protection areas will restrict where trees can be planted, and existing tree coverage may make it difficult for new plants to become established.

The suggested ‘two for one’ approach also appears to be frequently specified in other DA’s and in the SoEE under section 4.2.7 landscaping it states no new landscaping is proposed within this DA.”

Conclusion

While KKEPS supports the move towards clean green energy, it is opposed to this proposal because it will have an unacceptable impact on biodiversity and will make it difficult for koalas to traverse the property, pushing them onto the local roads and into the path of vehicles. In addition, this proposal will be detrimental both in the short-term during construction, and in the long term due to unsuitable design.

KKEPS submits that this Development Application should be refused because there is no net positive outcome for the environment when koala habitat and a wildlife corridor will be impacted. Other endangered and vulnerable species will also be impacted.

KKEPS strongly suggests that further biodiversity studies are needed to truly ascertain the impact of this site, and that the cumulative impact of this and the other proposed sites should be assessed together.

Yours sincerely,

Carmel Northwood
Convenor
KKEPS (Koala Koalition EcoNetwork Port Stephens)

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