Enquiries
Please ask for Theresa Folpp
Direct 02 6549 3700
Our reference Muswellbrook Battery Energy Storage System

11 October 2022

Julia Green
Senior Environmental Assessment Officer
Department of Planning and Environment

Dear Julia

Muswellbrook Battery Energy Storage System (BESS) (SSD-29704663)
Muswellbrook Shire Council Comments on Environmental Impact Statement (EIS)

Reference is made to the following:

- *'Environmental Impact Statement for Muswellbrook BESS'* (Premise, Aug 2022) and supporting documentation (EIS); and
- Request to provide comment on the EIS via the Major Projects Planning Portal.

Muswellbrook Battery Energy Storage System (BESS) (the Project), owned by Firm Power (the Proponent), is a 150 megawatt (MW), 300 MW hour BESS proposed to be located at 20-24 Sandy Creek Road, Muswellbrook.

The proposed BESS comprises the following key infrastructure:

- Enclosed lithium-ion batteries;
- Power conversion systems including associated switchgear, protection and control equipment, transformers and enclosures for housing equipment;
- Underground power and fibre optic cabling interconnecting the equipment;
- Grid connection equipment including main power transformer, switchgear, protection and control equipment, metering, reactive power equipment, filtering equipment, auxiliary/earthing transformers and enclosures/buildings for housing equipment;
- Underground or overhead 132kV sub-transmission lines to connect the BESS to the Muswellbrook substation;
- Earthing and lightning protection systems;
- Site office, storage area/enclosure, internal access tracks, on-site parking, security fencing, CCTV, lighting and temporary construction laydown area;
- Noise walls and vegetation screening; and
- Utilisation of existing site access arrangements.

Muswellbrook Shire Council appreciates the opportunity to comment on the EIS and its submission is as follows:

Project Description

01. The Noise Impact Assessment shows that there are 82 Megapacks, 41 step-up transformers and one main power transformer proposed as part of the Project. Please include figures that show the typical layout and configuration of these components (including placement of transformers and inverters and their indicative sizing) as well as the internals of the BESS Megapacks (e.g. showing the battery pods and lithium-

ion batteries). It would also be useful to include a figure showing a typical BESS substation layout and access track and a flow chart that describes the BESS process.

02. Describe the pattern of charge/discharges likely, both daily and annually.

03. Proponent is seeking a 20-year approval or approval in-perpetuity is being sought. It is assumed the latter is being sought.

04. Provide an indicative construction schedule i.e. showing general activities for month (M) one, M2, M3 etc for the 12-month construction period. This will assist in understanding traffic movements and temporary housing needs.

Voluntary Planning Agreement

05. The Proponent has not proposed a Planning Agreement with Council. A Planning Agreement would be consistent with other SSD for mines and power generation in the Shire, and other recent battery approvals e.g. Wallerawang Battery Energy Storage System, 500MW, determined April 2022, $1,000 per MW (by nameplate capacity) installed and in commercial operations.

    The applicable s7.12 Plan requires a contribution of 1% of CIV if a PA is not nominated. The contribution would address community impacts and the costs of Council resources to maintain local roads, review plans, monitor outcomes, contribute to closure/rehabilitation planning in the future. The PA should include targets for employing local youth as apprentices on the site.

Waste

06. Section 6.15.3.3 of the EIS states that “majority of materials would be reused or recycled where possible. Disposal of batteries would occur in accordance with the hazardous waste policies in effect at the time of decommissioning”. Similarly with other projects, the EIS should identify recycling opportunities and relevant schemes for major asset components including lithium-ion batteries, battery container, inverter container, step-up transformer and switch room.

07. Provide a table that lists types and indicative quantities of waste that may be generated by the Project and describe how these waste streams will be stored, reused, recycled and / or disposed of.

Traffic and Road Maintenance

08. Council Officers are concerned that Sandy Creek Road in its current state is not suitable for the proposed construction vehicle as there are insufficient road shoulders to facilitate heavy vehicle movements. The Proponent will need undertake localised works to accommodate traffic movements. These works will need to be designed and constructed as part of a Section 138 permit process.

09. The access point to the Muswellbrook Town Travelling Stock Reserve (R70196) from Sandy Creek Road may need reconstruction to meet the requirements of Council’s ‘Standard Drawings for Rural Property Access’ (see attached).

10. A Traffic Management Plan will be required for construction and decommissioning phases and should:

a) Identify the type and volume of vehicles anticipated to access the site during the carrying out of construction works.
b) Anticipated paths of travel for vehicles accessing and departing the site.
c) Manage vehicles entering and exiting the site and the public using Sandy Creek Road. Traffic control measures along the Sandy Creek Road may be required.
d) Manage vehicles turning off the New England Hwy to cross the railway, including avoidance of queuing on the New England Hwy when the crossing is closed for train movements, as there is no sheltered right turn bay on the Hwy.

11. The Muswellbrook Town Travelling Stock Reserve (R70196) driveway that is being used for access to the site is to be maintained to a standard that is safe and non-polluting at all times (NB. This is not a Council maintained road).

Noise

12. Provide detail on materials used to construct noise barriers to quantify the mitigation of noise impacts.

13. Include a commitment that should noise complaints be received during operation and following installation of noise barriers, that the Proponent will develop a short-term noise monitoring program (either attended or via installation of unattended monitors) to confirm noise impacts are within predicted noise levels.

14. The Noise Impact Assessment has assumed specific tonality corrections based on the manufacturer information of the batteries. The procurement process should include a guarantee from the BESS manufacturer that the final BESS selection is free of excessive levels of tonality.

Cumulative

15. As stated in the Noise Impact Assessment, the cumulative noise level from the Muswellbrook Bypass and the operation of the BESS are not able to be determined because the Environmental Assessment for the bypass (AECOM, 21021) “provides contours and due to the time differences between road noise and industrial noise, it is difficult to assess cumulative noise levels accurately”.

    The highest predicted noise level from the Project is 36 dB(A) during the night-time and the predicted noise level from the bypass is around 55dB(A).

    Council Officers are concerned that if both projects (plus the existing substation) are operational and noise criteria are being exceeded at private receivers, each Project will simply state that their own incremental contributions are less than the criteria and within predictions of the relevant EIS; and the noise impacts will continue to occur at the receiver. This cumulative impact issue is common in the Muswellbrook Shire due to the mines, especially in relation to air quality impacts.

Visual

16. It is difficult to visualise the impacts of the Project without a photomontage superimposing the Project onto the landscape. Please provide photomontages from the viewpoint assessment points provided in the Visual Assessment to assist. Please also show the proposed Muswellbrook Bypass on one of the photomontages.

17. The magnitude of visual impacts are predicted to lessen (e.g. at View Point 3) once vegetation is established. However, the proposed height of vegetation required to provide mitigation is unclear. Furthermore, the vegetation screening may take some time to establish and reach the desired height (and density) to mitigate views toward the Project. Confirm required height of vegetation, noting that tree and shrub planting should be selected in consultation with neighbouring landowners and utilise endemic species. Council Officers recommend that overstorey species be at least 8m in height (consistent with existing vegetation on the site).

18. The indicative character of proposed screening vegetation as shown in Figure 2-3 of the Visual Impact Assessment is supported.

19. Council Officers support the following operational mitigation measures as outlined in the Visual Impact Assessment:
    a. The battery enclosures to be neutral colour, such as grey, to reduce their prominence where visible; and
    b. The noise barriers would be painted a dark neutral shade (such as Colourbond Woodland grey) to reduce their prominence in the landscape.

Landscaping and Vegetation

20. A Landscaping Plan should be prepared to address visual impacts. The Plan should nominate species indigenous to the local area, their mature heights and establishment needs. The landscaping and vegetation must be maintained and retained in accordance with the approved landscape plan.

Hazards

21. The Preliminary Hazard Analysis (PHA) identifies the surrounding land use of the Project to be "sporting complexes and active open spaces" which has an Individual Fatality Risk Criteria pf 10 pmpy. However, a residential subdivision is proposed in this area which would attribute a criteria of 1 pmpy. Confirm that if the "1 pmpy" criteria is applicable to the Project, that it would still meet *Hazardous Industry Planning Advisory Paper No.4 – Risk Criteria for Land Use Safety Planning* for both fatality risk and injury / irritation.

22. Clarification is required on the accepted heat radiation criterion (including wind conditions). Section 4.1 of the PHA references both a 4.7 kW/m^2 for fire impacts and 23 kW/m^2 for property damage and accident propagation. Table B-1 describes the associated physical impacts for each, as follows:
    - 4.7 kW/m^2 – will cause pain in 15-20 seconds and injury after 30 seconds exposure (at least second-degree burns will occur); and
    - 23 kW/m^2 – Likely fatality for extended exposure and chance of fatality for instantaneous exposure

    Council's concerns are as follows:
    a) The reference to 23 kW/m^2 is referenced in Section 6.6.3.1 of the EIS to justify impacts from li-ion battery fault, thermal runaway and fire *(which has not been used as a justification in the PHA for this impact*); and
    b) Section 6.7.4 of the EIS states "Implementation of a 10 metre wide Asset Protection Zone (APZ) around the BESS and associated buildings, to ensure that radiant heat levels at the building surface remain below 29kW/m^2" *(a level of 29kW/m^2 seems dangerous when compared to Table B-1*).

23. The majority of hazard impacts identified in Section 4 of the PHA are justified as being negligible based on the manufacturing quality of the battery, however impacts can be mitigated by fire suppression systems and appropriate bunding. Confirm whether the Project will include automatic fire suppression systems and bunding and which Project components they will be located on.

24. Section 4.8 of the PHA states that "the cumulative effect of transmission equipment would not exceed the 2,000 mG for prolonged exposure" for electromagnetic field (EMF), however the sources and magnetic strength for Project components have not been include in the PHA so it is unclear how this conclusion has been reached.

Water

25. The Water Assessment recommended that "further investigation might be required to verify the presence of Groundwater Dependent Ecosystems at the site". These recommendations should be finalised for the Submissions Report.

Site disturbance, erosion and stormwater

26. The assessment appears to be based on plan-view geometry and therefore does not describe the extent of impacted areas, for example, if there are cuttings and batters, extra clearing, infrastructure relocations, supporting drainage structures and the like.

27. Management of erosion and rehabilitation of disturbed areas will be important. The development needs to satisfy the following:
    - Limiting disturbance of development footprint to areas than can be reasonably managed in terms of batter slopes and extents;
    - Avoiding large cut and fill on the site;
    - Capturing and appropriately detaining runoff from disturbed areas, prior to discharge to decrease sediment loss from the site;
    - Similarly capturing and appropriately detaining runoff from roofed structures; and
    - Stabilising and re-establishing disturbed areas in a timely manner in accordance with the Landcom Blue Book guidelines.

28. Conditions of approval should include a requirement for a comprehensive stormwater management plan for the battery compound that addresses how stormwater will be collected, conveyed, treated and safely managed on the site due to the significant associated hardstand area. Guidance on stormwater management is provided in Council's Development Control Plan. Australian Rainfall and Runoff 2019 should be used. The plan should consider:
    - stormwater management for both typical and extreme events;
    - emergency spill events; and
    - the impacts of any proposed bunding versus ponded stormwater.

29. Emergency isolation measures for the drainage systems are to be detailed including in case of a fire, as well as drainage of the hardstand areas, with all drainage infrastructure be designed for construction, operational and decommissioning traffic loading. Overflow routes and erosion management controls for stormwater should also be included, and form part of a DRAINS model.

30. Additional access points for buried drainage infrastructure should be included as required to ensure regular maintenance is possible. Selection of materials for

drainage infrastructure should consider the potential for fire within the catchment area, and for superheated oils and hydrocarbons.

31. The gradient for the hardstand area, its location and integration in the wider site, should be clearly demonstrated within the plan.

32. This plan shall also include stormwater treatment measures such as secondary treatment systems that capture fine sediments as well as oils and hydrocarbons, and provided in the form of MUSIC model, and in accordance with Council's DCP. Sizing methodology for all systems to be provided as part of the stormwater management report, and the report shall be accompanied by a maintenance plan for all stormwater.

Greenhouse Gas

33. As requested in the input to the SEARs, please include a greenhouse gas assessment for the life cycle of the Project. It is assumed that this would capture the embodied energy for the battery components and concrete hardstands; and greenhouse gases generated for transportation.

Stakeholder Engagement

34. A condition should be included that prior to commencement of construction, consultation occur with the proponents of Muswellbrook Solar Farm and Muswellbrook Pumped Hydro to resolve any interaction issues.

35. Please clarify whether ongoing stakeholder engagement will be managed through a Stakeholder Engagement Plan (or other document).

36. Ongoing stakeholder engagement should include consultation with the development of the Northview Estate, especially in relation to the timing of Project construction and whether it coincides with development of Northview Estate Stage 7. If construction of Stage 7 of Northview estate occurs prior to construction of the BESS, an appropriate noise mitigation strategy will need to be developed.

37. Complaints handling – Provide the 1800 number referenced in Table 8 and a link to the Project website referenced in Table 3 – the Project website was unable to be located via a Google search.

Land Use Conflict Register

38. The Land Use Conflict Register references the 500m blast exclusion zone for Muswellbrook Coal from the active mining pits. Consultation with Muswellbrook Coal Company is required to confirm whether blasting activities will occur in areas previously or proposed for rehabilitation and within 500m of the Project.

39. To note, the Wild North Quarry (termed "Muswellbrook Quarry" in Appendix K) is a Council approved quarry (DA 1999-344). The quarry is not operating and its Environmental Planning Licence has been relinquished. While the site is inactive it is yet to be fully rehabilitated in accordance with the development consent (broadly including improvements required to meet the Closure Plan requirements including vegetation establishment, works related to a dam on the property and weed management).

Mitigation and Management

40. Additional mitigation and management measures are recommended as follows, and in addition to those identified in Appendix C
    a. Visual – During operations, where reasonable and feasible:
        i. Ongoing maintenance and repair of constructed elements;
        ii. Replacement of damaged or missing constructed elements; and
        iii. Long term maintenance (and replacement as necessary) of vegetation within the Project site to maintain visual filtering and screening of external views.
    b. Noise
        i. Restrict construction hours and days
        ii. Only undertake work outside these hours under strict conditions and in accordance with any Out-of-Hours Construction Protocol (developed in consultation with relevant authorities)
        iii. Consider dwelling when locating fixed noise sources
        iv. Conduct induction training including noise
    c. Water
        i. The Project will not involve any taking of water via dams or bores which require a new Water Access Licence (WAL). The responsibility for obtaining the necessary WALs for the water carted to the Project during construction will rest with the contractor that supplies the water.
    d. Weed management should continue during the operational and decommissioning phases of the Project
    e. Excavated soil will be reused as soon as practicable. If soils cannot be reused in a timely manner, it will be stockpiled and temporarily rehabilitated
    f. Vegetation removed to facilitate the Project will be stockpiled and disposed of appropriately
    g. The principles of “reduce, reuse, recycle” will be applied wherever practicable to minimise waste generation
    h. Mitigation measures provided in the Biodiversity Development Assessment Report will be included in the CEMP and OEMP and undertaken at site.
    i. Air Quality
        i. Implement measures to reduce visible dust emissions during construction: stockpile management, speed restrictions, manage activities in unfavourable conditions, undertake regular inspections, and operation: speed restrictions on unsealed areas, limiting maintenance in unfavourable weather and regular inspections.
        ii. All vehicles to comply with appropriate emission guidelines and equipment will be properly maintained. Minimise engine idling when vehicles are stationary.

Amenities Building Requirement

41. An amenities building providing hand washing and toilet facilities, and a place to eat meals, should be provided on the site for the construction, operation and decommissioning phases of the development.

Decommissioning Plan

42. A Decommissioning Plan is to be prepared. The plan must outline measures to ensure that the decommissioning of all BESS elements and the rehabilitation of the site is completed. The plan should include details in relation to the following:

a) A program for the decommissioning of all BESS elements, above and below ground infrastructure, redundant buildings and other infrastructure related to the approved development.
b) A strategy for the rehabilitation of the site to return it to a standard that would support the agricultural use of the land to a standard consistent with its standing pre-development.
c) Establish a timeline for the completion of decommissioning and rehabilitation works within 12 months of the conclusion of the premises operational lifetime.

43. At the conclusion of the development's operational lifetime, decommissioning of the site should be carried out in accordance with the Decommissioning Plan. Documentary evidence should be provided to Council, from a suitably qualified person, to confirm that the development has been successfully decommissioned to a standard to support the agricultural use of the land in accordance with this requirement.

Council appreciates the opportunity to comment and would be pleased to provide additional information if requested. Should you need to discuss the above, please contact Theresa Folpp, Development Compliance Officer on 02 6549 3700 or email council@muswellbrook.nsw.gov.au.

Yours faithfully

Sharon Pope
Director Environment and Planning