LYNDAL GAWEN

13 December 2024

Dear Sir/Ma'am,

RE application SSD-61842974: Hume North Battery Energy Storage System

Thank you for the opportunity to provide feedback to the Hume North Battery Energy Storage System (the project). The project is greeted with general gratitude for the efforts made by Foresight to support NSW move to a net zero carbon emissions position. However, the proposed location of the project does cause pause for consideration of the precautionary principle. The project proposal is for the development of a BESS on top of an undulating hill, that quickly turns into a steep south-west slope down to the Upper Murray River approximately 500 metres away.

What we do know about (lithium) BESS projects is they have the distinct ability to catch fire. When they do catch fire they are exceeding difficult to put out. The main object of fighting a BESS fire is to prevent it from spreading, not through flames, but by temperature to prevent thermal runaway. For example, it took over three days to put out the Moorabool, Vic, BESS in 2021. A combination of:

- Cooling, with the use of significant volumes of water,
- fire suppression chemicals (does this include 'forever chemicals'?),
- sand and/or dry agent extinguishments.

There is no denying there are probably some great adaptive management strategies that can be put in place. However, it would be appreciated if NSW Major Projects could seriously consider the devastating effects that will occur to the Murray River and the downstream communities that depend on the unpolluted flow of the river, in the (unlikely but probable) event that a serious fire occurs in a module at the BESS project site. As Moorabool taught us, putting out BESS fires is still an experiment.

There is currently no indication Foresight has engaged with the idea that the Murray River is less than a kilometre away down a steep slope. The EIS only focuses on the mechanisms of complying with legal requirements. It is not considering the context of the project and the objects of each Act.

Appendix L: Surface Water and Hydrology Assessment

The focus here is on flood. Flood of clean water is not a concern, but the information here will provide insight into where runoff from fighting a BESS fire will flow.

Looking at figure 5.6: The topographic lines indicate a descent toward Trout Farm Road, and a steep slope on the other side of the road directly to the river. The indicative land flow from the BESS site is down towards Trout Farm Road. Trout Farm Road follows a gentler gradient directly to a bridge over the river into Victoria, about 1 km from the project site. In

other words, once run-off water hits the road, in a decent volume it is on its way to the Murray. Water from the BESS site in any volume will travel either to Trout Farm Road and over it into the Murray, or follow the road to the Murray. There is no where else for it to go. What amounts of water and chemical suppressants would be required to put out a single module fire? Is this amount containable in the current proposed location?

Appendix P: Bushfire Assessment

The report is only considering the impact of bushfire around the BESS locations. If a bushfire reaches the location does it have the ability to set a BESS module on fire? In terms of location and safety from bushfires, the project site is prima facie an okay location. The project site is surrounded predominately by grass land to the north and east of the site. West is residential and south is the river which swings to the west after the bridge. Ultimately, the location is not bushland.

There is a need to be real about accessibility to the BESS during a fire event. Access is via Trout Farm Road, this is the only access road to the project site. Once this access in one direct is blocked, it is about a 50-minute trip to gain access in the other direction, via another state. Once Trout Farm Road is blocked in both directions, there's a need for fire fighters to access the project site through the paddock of a neighbouring property.

The proximity of the BESS to the Murray River should at all times be considered a sensitive asset in need of fire protective resources. An adaptive management method would be to put a frame-like structure over the top of the BESS modules that enables the release of sprinkler water. With any luck a bushfire near the BESS will not last long and there is sufficient supply of water on the project site to last the duration of a passing bushfire. While access should not be relied on, 2019 bushfires taught us, sufficient fire fighters exactly where and when we need them should also not be relied on. As much self-sufficiency in this area should be a real consideration.

Appendix O: Preliminary hazardous analysis

I looked long and hard for how the river would be protected in a worst-case-scenario, but the narrow legislative compliance focus prevailed in this appendix. The report acknowledge that a BESS *single* module fire is a worst-case-scenario, and very briefly looks beyond the borders of the project site. While the idea of a 'spill' is limited to the stagnant products on-site for BAU purposes, it does not consider 'what happens' in a worst-case-scenario.

The worst-case scenario being responded to in A2.2.2: Toxic combustion products, is limited to air borne pollutants. While these are drastic, their social and economic ramifications are far less than the unknown quantities of toxic run-off it will take to extinguish a BESS single module fire. The EIS lists toxins produced by a BESS module fire, but does not include how these interact with agents used for suppressing the fire. For example: hydrogen fluoride is a by-product, the thermal runaway factor (different to the sealed door/oxygen explosion), involves the potential for hydrogen fluoride to dissolve in water to produce hydrofluoric acid. How much water will be needed to put out a single module BESS fire, what other chemicals are needed and in what volume? I am clear in my minded that the asset to be protected during

such an event - it is the Murray River and not the BESS.

Hazard A2.2.4: Loss of containment of pollutant material from the Project infrastructure, also does not acknowledged the combination of a BESS module fire and toxic waste run-off. A2.2.4 considers the 'loss of containment and environmental pollution' to be 'acceptable', because the likelihood of the event is 'rare'. The risk ranking has totally ignored the potential harm of toxic run-off to get a 'worst-case-scenario' under control: lots of water, lots of chemical suppressant (Where are they going?), in a downhill flow to the Upper Murray River.

In the location context of the Upper Murray River, 500 metres downhill of the BESS site, a more comfortable consideration would be to determine:

1. what does catastrophic mean in this context; and
2. how many modules need to be on fire to get to that factor?
3. What is our tolerance for disaster?

Until this calculation is made and quantified, I do not believe that the life and economic value the Murray River holds has been properly accounted for. Question 3 is not a question for an EIS or a SSD process, 'our', extends much further.

Appendix C: Project engagement

There are some lovely materials published in this appendix, and the effort to make the project complexities readable is appreciated. Unfortunately, as the appendix alludes to through absence, there is/was no plan on how to distribute this information to the community. I found out about an information session in May 2024 through my network of interested Albury and region community members. The local newspaper found out about the project through interested community members.

If the starting place is that a BESS fire event has the potential to adversely impact the Murray River, there is a duty, deep within the law, to our sovereign neighbours: the no-harm principle. I realise the Murray River 'belongs' to NSW, however, the impact in Victoria will be just as devastating to the community and agricultural sector as it will be in NSW. Has anyone discussed the proposal with Victoria for their input or the Murray-Darling Basin Authority? What do these authorities think, what expectations of support does the project assume should an A2.2.2 worst-case-scenario occur?

Appendix R: Social and economic impact assessment

Section 6 in this appendix talks a little about the engagement process, it is a little underwhelming. Section 5 is vaguely interesting for its social and economic breakdown of Albury/Wodonga. It gives an idea of the possible economic and social ramifications if true damage to the Murray River occurs in this little section of the river. The EIS provides no understanding of the actual potential damage that is possible to the river, even on what it calls a 'worst case scenario', much less how far downstream its effects will travel, nor for how long.

Our full understanding of extinguishing a BESS module fire is still in the development stages: how long they burn for, the full extent of thermal run-away and its control, how much water is needed to cool the fire, full extent of the chemicals required to extinguish the flames/heat, full extent of the toxic emissions and their residue. The event of a BESS fire may be rare, but the uncertainty that is involved in containing a fire makes the off-site environmental devastation unacceptable. The Murray River is too precious a resource to unwittingly contaminate.

Unfortunately, the EIS documentation has been responded to a legislative compliance view of the project. It has not considered the environmental context of the landscape in which it is proposing to build a BESS and it has not embraced the objects of the relevant legislation. There is a strong need to expand the view an additional 500 to 700 metre to incorporate the Murray River and the risk of deploying this new technology in an economically and socially sensitive location. Do we as a science-based society have sufficient controls over BESS deployment and maintenance to guarantee the safety of Australia's largest river system? Is the risk of contamination at the top of the Murray River system worth our hindsight knowledge should something go drastically wrong. Selfishly I would rather read about this possible disaster (hindsight lesson) in the international news. I applaud the project and the development of BESS technology, but not so close, with a downhill slope to, the Murray River.

Final word

It is not lost on me that there is already approval for Foresight to construct a similar BESS project even closer to the Murray River, where absolutely no margin of error is available. Once there is a BESS fire of any sort, there are major issues on our hands.

I am being honest when I say I applaud the project, our society is in need of solutions and BESS projects are one of them. However some risks are too high. The amount of toxins to putout a BESS module fire are too high, maybe at this point in time, to be building on a river front or downhill from a major river system.