Save Our Surroundings (SOS) objection to the BESS

Development Assessment Department of Planning and Environment
Locked Bag 5022
Parramatta NSW 2124

Submission uploaded to : www.planningportal.nsw.gov.au/major-projects
Hume North Battery Energy Storage System 75MW/2hr - SSD 10460
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From: saveoursurroundings@outlook.com

Dear Contact Planner,
Save our Surroundings objects to the Hume North BESS for the following reasons:

1. The Proponents of other BESS projects have stated in their EIS that the "Disadvantages of batteries include their relatively limited life, potential hazardous material construction, and sensitivity to climatic conditions." We agree. The simultaneous replacement of the batteries and the upgrades to equipment are frequent and very costly. The initial capital cost, very high operating/replacement costs, the energy losses, the funding costs, the profit margin and the decommissioning, disposal and rehabilitation costs all have to be recovered from the difference in buying electricity and selling electricity. The BESS does not generate electricity and only puts 70 - 80% back into the grid of what it took out to be charged. It is therefore a significant net consumer of electricity. If the project qualifies for subsidies this may offset some of the BESS costs, but it will increase the burden on State and Federal budgets. Obviously, all these costs increase the overall electricity system cost, which is passed onto the consumers and taxpayers. South Australia has no coal-fired power stations, over 70% of its capacity is wind and solar and it has one of the world's biggest BESS works yet it has the highest retail electricity prices in Australia and globally. The other states in the NEM are also catching up fast as they close down more of their coal-fired power plants. Will the Proponent's project remain viable if Lithium battery prices continue to increase? Will the Proponent's project remain viable when large and/or small nuclear reactors (SMRs) enter the market as they must, based on current overseas experiences? Will the Proponent's project remain viable if there is little or no excess electricity available? Will the Proponent's project remain viable if replacement batteries are in short supply due a shortage of battery materials, such as Lithium or supply chain interruptions? When the Proponent states its BESS will stabilise wholesale prices implying retail prices will fall too, despite the contrary experience of multiple countries, such as Germany?

2. BESS capacity degradation refers to the reduction in the maximum energy storage capacity of a BESS over time. It is primarily caused by factors such as battery ageing, chemical degradation, cycling (charge/discharge), and environmental conditions. This means if the BESS is 100MWh at zero and after two years the degradation will be 90% this will bring the BESS capacity to 90MWh. For the Proponent's proposed BESS by year 10 the BESS would be expected to be around 76% of original energy capacity. This implies not only a significant fall in electricity provided to the NEM by the BESS but also significant falls in BESS revenue. Does the degradation rates mean that the revenue from the BESS will continue to fall every year until it is uneconomic? Does it mean the BESS will need equivalent price increases each year so as to recover its significant costs and/or need replacing by year 10? How will the NEM make up the electricity shortfall that this and other BESS works inevitably cause as they degrade?

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3. The BESS life is stated as 30 years.
   How does the Proponent justify this claim when all the batteries and invertors, which are the majority components of a BESS, have to be replaced at least three times over this 30 years period, assuming just one charge/discharge cycle a day?

4. Lack of data and research. There is very little research into the life-cycle of BESS works, especially under the harsh conditions found in regional Australia, as stated by TWAICE, as follows:
   "Energy storage system projects are designed with an outlook into the overall lifetime of the battery, and the fact that the battery will perform at a certain level during this time. However, unlike in the mobility sector, energy storage system designers do not have access to a lot of data from the field that indicates how the battery will behave under different conditions in the future. Additionally, energy market regulations and rules are changing, sometimes unforeseeable, and hence not all future use cases can be anticipated."

   Therefore, there are valid concerns that regional people have about industrial scale BESS works, whether stand alone or as part of an industrial wind or solar electricity generating works. It is the regions of NSW, Queensland and Victoria where Renewable Energy Zones have been declared and these massive industrial developments are proliferating. It is the residents of the regions that have their lives disrupted for decades, their amenity destroyed, their jobs lost, their roads damaged, their travel times extended, their properties put at risk, their wildlife diminished, their health at risk and their lives put at risk.

   What we do know already is that the Lithium-ion batteries: are classed as hazardous materials and require special handling and operation under temperature controlled conditions; catch/cause fires; emit toxic smoke when on fire; fires are chemical reactions and so are extremely difficult to extinguish; increase the danger to fire-fighters; probably involve slavery to mine materials; almost exclusively made by the world's highest CO2e emitter; will periodically require recharging from the grid, which increases demand on the grid; require much more input energy than they can deliver to the grid; are resource intensive; are very costly to produce; increase electricity costs, are environmentally damaging to produce; have much shorter lives than the electricity generators; do not recycled easily; are costly to recycle and dispose of; typically are constructed on agricultural land; only briefly supply electricity to the grid; main purpose is to stabilise voltage frequency variations caused intermittent solar and wind output, and; contain very little Australian content.

   At this stage, the batteries are "not fit for purpose" as a near 100% backup supply of electricity to meet Australia's modern society energy needs. There are just far too many risks and issues not being considered. BESS works are being too rushed without due diligence of the short, medium and long term consequences. The precautionary principle and intergenerational equity considerations must be applied.

   Detailed research encompassing Australian conditions must be undertaken to fully and properly assess BESS proposals (stand alone or otherwise) before approving any more BESS works. Does the Proponent agree? If not, why not?

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Conclusion

The claims that the project will result in clean, cheaper and reliable energy generation are unsubstantiated and are contrary to the real world facts evidenced by both domestic and overseas experiences. It increases CO2e globally and the cost of NEM electricity. It therefore fails the two fundamental justifications for approval.

This proposed project will do little to address the already compromised energy needs of the NEM grid, let alone, Australia. In fact, it will make it worse as evidenced by overseas experiences in recent years and our own experiences since 2021 with soaring electricity prices, blackouts, energy rationing and more business closures occurring and more predicted for years to come.

The costs in net jobs, environmental damage, destruction of wildlife and habitats, visual pollution of natural landscapes, immediate significant increase in global greenhouse gas emissions, increased cost to electricity consumers and tax payers, cumulative disruption to local communities and others along transport routes, health and fire risks, possible use of slave labour, energy and sovereign security risk, and unfunded end-of-life costs, are just a few more reasons this project should not proceed.

Taking just the foregoing into account the proposed project is "not fit for purpose" and must not be approved. Other countries now recognise these shortcomings and are now turning to better alternatives such as safe, long-life, 24/7 output electricity generation options, such as efficient low CO2 producing HELE plants, CCGT plants , nuclear reactors and in the near future small modular reactors.

Regards
Save Our Surroundings (SOS)

Save Our Surroundings (SOS) is part of network of like-minded groups of concerned & impacted citizens in rural Australia directly affected by the proliferation of industrial scale weather-dependent “unreliables” & their negative impacts upon local & global environments & communities. Independently run groups like SOS span multiple States. We share & distribute information, research & experiences with each other & other parties.