Mayfair 60MW PV Solar works and 60MW/240MWhr BESS
SSD-60074458

Save Our Surroundings objects to these proposed PV solar electricity generation and BESS "firming" projects.

The Proponent has made many statements in its EIS that we believe to be exaggerated, misleading, unsubstantiated or false.

Statements made by the Proponent that we will address in this submission include:

1. " ***The Project is for the purposes of 'electricity generating works' and has the capacity to generate 60MW...***" (p10).
   60MW solar works capacity, which generates intermittent output and not necessarily when required, is not comparable to a base-load electricity works, such as modern HELE, CCGT or nuclear plant. SOS has developed a basic indicative formula where Capacity equivalence Ce = generator type (capacity X capacity factor X claimed life)/ base-load (capacity factor X economic life).

   e.g. for the proposed 60MW solar works generator Ce = (60 x 25% x 25 years)/ (90% x 50 years) = 8.3MWe or seven times less than the 60MW HELE plant. Solar Ce will be even lower if solar panel degradation, solar works likely economic life and intermittency were taken into account. But that is for Mathematicians to work out.

   However, the Ce does illustrate just how little this project would contribute to the energy needs of the NEM electricity consumers and how little electricity will be provided at a huge cost to consumers, the natural world and future food production.

   Will the Proponent acknowledge that their $208 million proposal: will provide very little electricity; will increase electricity costs to consumers; will damage local and overseas environments and; reduce food production capability for decades in contravention to Article 2b of the Paris Agreement?

2. ***"...and includes a 60MW battery energy storage system (BESS) with 240MWh (four hours storage)***." (p10).
   We could say a lot about the myths of lithium-ion battery storage, but suffice to say just one charge/discharge cycle a day results in a maximum 13 years life; they are inefficient as the energy out is 20 - 30% of the charging energy in; battery fires are the one of most difficult to extinguish; mining for and manufacture of batteries is extremely toxic and environmentally damaging; slave labour is used for both batteries and solar panels; no economic 100% recycling of lithium-ion batteries currently exists, which poses a future huge waste problem; current BESS works draw on the grid from mainly electricity generated from fossil fuels; there will be occasions that the BESS cannot be fully charged, especially during wind droughts, cloudy days and winter months.

A BESS purpose is to stabilise the "dirty" electricity (e.g. variable voltage and frequency) produced by the solar panels.

Will the Proponent come clean on the dubious claim that the BESS will provide electricity during peak demand times, when at best it would only do so sometimes?

3. "***The Project seeks to deliver a best-practice solar farm and BESS to support the energy transition towards net zero in NSW***." (p9).
What 'best practice'**!** We see little in this EIS that is different from the numerous other solar works proposals. The Proponent needs to specifically detail what makes it proposal best practice, especially in the light of other dubious claims it has made. Best practice should result in a more viable project than non-best practice solar works.

   Assuming the project would generate 131,400 MWh annually it would be granted free RET certificates worth a minimum of $5,256,000 pa. Compare just this subsidy paid for by taxpayers and consumers to the $51,000pa on offer by the Proponent to our Council.

   Will the Proponent agree to not take any RET certificates so as to ease the cost of living pain on the Australians who fund these subsidies and pay exorbitant amounts for electricity?

4. ***"... while minimising environmental, social, and cultural impacts upon the Site and adjoining land through adaptive design approaches.***" (p9).
This statement by the Proponent confirms that the project will damage the local ecology as minimisation is not elimination of harm. Creating a claimed equivalent biodiversity offset still means our community loses out, especially as all existing and proposed projects also admit they too destroy our local habitats. The cumulative destruction of habit and wildlife must not be ignored.

   The Gulgong community and others have been by far the majority who object to the imposition and damage being done to our rural lifestyles, social cohesion and landscape character. The Proponent, as with other Developers, do not have social licence or our consent to destroy what we love about living in Gulgong and the Central West".

   The only "adaptive processes" being applied is the reiteration of unproven and unsubstantiated claims made by others and repeated by the Proponent.

   If the objections to this project are in the majority will the Proponent withdraw its proposal?

5. "***Generate and store electricity on the Site from renewable sources to reduce the amount of greenhouse gasses generated by the NSW power generation sector***."

(p9). All that is 'renewable', is the frequent replacement of batteries, solar panels, inverters, etc. The economic life of solar panels, batteries and inverters are much less than the extravagantly claimed up to 40 years life of the project (at a panel hearing a Proponent had to confess that their 50 years life was really only 20-25 years when challenged by SOS and supported by the Chair). These components require vast amounts of minerals, energy, fuels, and also involve slave labour.

Our calculations have shown that just the solar works component requires 3.8 times and 8.4 times more materials per megawatt hour generated over 60 years, excluding panel degradation, than a modern HELE plant or a nuclear plant respectively. [our paper "Wind and Solar Works Resource Requirements are Unsustainable" is available upon request].

Will the Proponent acknowledge that their project will consume vast amounts of the earth's resources relative to the amount of intermittent electricity it will generate?.

If the Proponent is so sure they will reduce the amount of greenhouse gasses will they tell us by how much their project will reduce or limit global temperatures?

6. "***Encourage and enable community and stakeholder engagement and participation across the life of the Project.***" (p9)
   Our community certainly would need to be encouraged as most do not want the Proponent's project. Handing back a tiny proportion of our subsidies as a "community benefit" is an insult.

   Will the Proponent agree to not take any RET certificates so as to ease the cost of living pain on the Australians who fund these subsidies?

7. "***Provide local and regional employment opportunities and other social benefits during the construction and operation of the Project and contribute to the local and regional economies.***" *(p9).* "***Temporary Workforce Accommodation Camp and Plan to avoid and mitigate impacts on regional housing and resources.***" (P15).
   Is the Proponent joking? A Labour Camp for 150 workers already recognises there is virtually no local labour available for this project, especially as our unemployment rate is about 1.2% for Gulgong's population of 2700. Competition from the EnergyCo transmission workers camps and numerous other proposed camps will mean there is no local labour available, but will divert resources (e.g., electricians) away from local businesses and residents while increasing the costs to them.

   Others have stated the workers will come from outside the region, predominately from overseas on temporary visas. The three operating workers will not be onsite, but contracted roving gangs, as for 87MW Beryl and 400MW Stubbo solar works.

   The social benefit will be a detriment, as thousands of outsiders swamp our already poor or non-existent services. Five years ago we had three doctors and a hospital. Now we have none of these. Our volunteer services, including the RFS, are dwindling

at a time of heightened risks from "ruinables" projects such as the proposed Mayfair Solar and BESS works.

Will the crimes of theft and assaults spike as they did during the construction period of another project. We basically have an unmanned police station in Gulgong. **Will that have to change?**

How does the Proponent intend to address its interference with our local society?

8. ***"...benefit-sharing offer to provide an annual monetary contribution of $850 per megawatt per annum for the life of the Project.***" (p9)
It is not a benefit when we are the ones who pay for it through subsidies, interest on government debts and ever increasing electricity prices.

   In addition, local residents and businesses have to pay a fee of 1% of the capital cost to the MWRC on lodgement of a development application. State Significant Developments are exempted from this fee. 1% of $208m is $2.08m, which should be paid up front. The proposed "benefit-sharing" offer of $850pa/MW ($51,000pa) over the life of the project merely represents the ratepayers providing an interest free long-term loan to the project.

   Will the Proponent improve its offer to MWRC to $102,000 annually and indexed to inflation and $300,000 up front payment?

9. *"**Temporary workforce accommodation camp, with a capacity of up to 150 workers.**" (p10). "**Temporary Workforce Accommodation Camp and Plan to avoid and mitigate impacts on regional housing and resources**."* (P15)
A Labour Camp for 150 workers already recognises there is virtually no local accommodation. A major source of economic activity for Gulgong is tourism. How many will still want to stay here if Gulgong sits in the middle of an industrial estate? Will Gulgong's Flirtation Hill Lookout provide nothing scenes millions of solar panels, BESS containers, transmission lines, sub-stations and other prominent infrastructure. A rural character lost. How will the Proponent mitigate this to our satisfaction, not just theirs and NSW Planning?.

   Oceans of black solar panels killing thousands of birds, especially water birds when Gulgong Lagoon is full, as they think the very hot (up to 60C) panels are water.

   How will the proponent prevent the destruction of our birds and other wildlife?

10. "***It has been demonstrated that the likely impacts are either positive or where negative can be appropriately mitigated.***" (p10)
Demonstrated to whom! Appropriately mitigated to whose satisfaction! Not our community. See above and below.

11. "***Appropriate Asset Protection Zones (APZs), water tanks and other bushfire mitigation measures.***" (p15)
    We know all the mitigation measures are inadequate, yet Proponents continue to put our properties, our town and our lives at additional risks of fire and toxic smoke. Even in relatively benign conditions fire-fighters struggled to contain some of the fires in the region.

    Beryl solar works, which is 5 kms from town, has already had several out of control grass and equipment fires. The fire that started on 24 April 2024 under solar arrays reportedly damaged 18ha of panels and was only extinguished naturally due to a 180 degrees wind change. Fire-fighters will not enter a solar works, but hope to protect the perimeter. Unlike the 2023 fire adjacent to the Beryl solar works, water-bombing aircraft could not be used.

    The Henry Lawson Drive fires in October 2024 burnt for days and reached the highest warning levels in NSW that month. Both water-bombing helicopters and an airplane were used. No fire-management plan for this project will succeed against nature and our fire-prone region.

    The 100kmph northerly winds on 16/01/2025, following days of hot temperatures, caused lots of damage in and around Gulgong and across NSW. If the solar works or BESS caught fire with such winds it would take a fire front and toxic smoke only minutes to reach Gulgong township. The proposed APZs, water tank and fire management plan would be useless. No time to react, no time to assemble resources, no time fight the fire, no time to evacuate, no town left, just death and destruction. Another Los Angles type bureaucratic bungle.

    Even as we write this submission a 5 years old BESS is on fire in Moss Landing California (not related to the devastating LA fires) is still burning after several days. Thousands of residents evacuated because of the highly toxic smoke.

    Australia has also had two BESS fires already (in Victoria and in Queensland) that burnt of days, as fire-fighters globally have no method of promptly extinguishing such fires, let alone controlling the toxic smoke. No BESS should be built anywhere near populated areas.

    Would the Proponent please justify why we should be exposed to such extra risks, when your project would be only 4.2kms from Gulgong township? Will the Proponent find another site well away from our towns?

12. "***Proposed agrivoltaics during operation (sheep grazing) to minimise the partial loss of agricultural value.***" (p15)
    This proposal will go the same way as the Beryl solar works sheep grazing experiment/photo shoot. Abandoned!

    It not up to us to educate the Proponent and NSW Planning about a sheep business. Just consider, sheep farming involves lots of costs and activities done well to be

profitable. Sheep need safe pastures, quality food, shearing, crutching, lamb marking, pregnancy testing, parasite control, rounding up, and loading and transport to market of wool and meat. Quality pastures require rotational cropping, fertilising, reestablishment after drought or fire, weed control and the ability to safely conduct roundups.

Apart from a marketing ploy, "sheep grazing" is not economically viable in the long-term and through a variety of seasonal variability. Sheep are at risk of harm or death in a solar works, as occurred in the Riverina. Sheep died after being caught up in a solar array tracking mechanism. Sheep and wildlife co-exist but sheep and solar panels do not.

Will the Proponent admit that the proposed 'agrivoltaics" (sheep grazing) is not feasible over the life of the project?

13. "***The preparation of a Waste Management Plan to avoid impacts on regional waste management facilities.***" (p15)
Waste is waste and the project will generate lots it, both during construction (e.g. material and human waste) and during operation (e.g. replacement of hail or fire damaged panels, multiple replacement of end-of life batteries and inverters) and upon decommissioning.

As stated in point 5, this project will utilise 3.8 times to 8.4 times more materials per megawatt hour generated than alternative generators. Hence, waste from this project is a much bigger issue than presented in the EIS. However, being a "best practice" project we are hopeful that the Proponent has already fully evaluated its waste quantities and disposal methods, and not just hope to push it out to after project approval as part of a future waste management plan.

Will the Proponent provide a comparative analysis of the relative waste generated, including mining, processing, manufacturing, transport, construction and disposal waste, of its proposed project, with say a modern High Efficiency, Low Emissions (HELE) coal-fired power station or a near zero emissions nuclear reactor of similar capacity?

14. "***The offsetting through ecosystem credits of direct impacts on native vegetation.***" (p15). *"Proposed conservation and revegetation efforts on retained native vegetation areas to achieve a nature-positive outcome."* (p15)
The biodiversity offset scheme has already been shown to be ineffectual. Ecosystems evolve over hundreds, if not thousands, of years. Endangered species or any species for that matter cannot easily be relocated or a new similar ecosystem established elsewhere. The end-result is a net decline of the displaced habitat and all the wild-life that utilise it.

The cumulative loss of wild-life habit on the scale proposed by all these ruinables projects will be at great cost to our region. Bird Atlases NSW and The NSW Bat Studies have identified numerous threatened bird species and multiple bat species,

including one thought to be extinct, that inhabit the Central West region.

Will the Proponent undertake zero destruction of all native vegetation and wild-life on the site to ensure all the ecosystems are protected?

15. "***The Project responds to international, national, state and regional needs to deliver reliable, low-carbon and sustainable energy into the electricity grid.***" (p18)
Those countries (e.g. Germany, Australia) and states (e.g. SA, California) that moved substantially (>30% of grid capacity) to solar and wind generation have cannibalised their reliable and sustainable base-load power generators. The predictable end-result (SOS has twice provided the evidence in submissions and as witnesses to Federal Parliamentary hearings on climate and energy) is higher energy costs, blackouts and economic decline.

    More and more countries are moving away from increasing wind and solar electricity generation capacity and are following what India, China and other major economies are doing. These countries are building coal-fired and gas-fired power stations and nuclear power plants in huge numbers. The new USA administration is to adopt the same approach. The USA is to pull out of the Paris Agreement. Others may follow.

    SOS did an analysis on the potential embedded CO2 in Chinese made PV solar panels. This is relevant as 90% of solar panels imported into Australia are manufactured in China.

    The payback period for offsetting embedded CO2e in PV solar panels made in France is 1.5 - 2.5 years. The payback period for offsetting embedded CO2e in PV solar panels made in China is 8.6 - 14.3 years. The range of the payback periods results from the latitude at which the panels are installed. The analysis only considered panels made prior to leaving the factory and excludes the aluminium frames, which have very high embedded CO2e content.

    The evaluation of all industrial PV solar works proposals must include assessment of the likelihood that the project will actually substantially increase CO2e emissions that may never be offset over its operational life-time and upon decommissioning, disposal and land rehabilitation.

    From where will the Proponent source its PV panels and other components? Will the Proponent provide the embedded CO2e in its project and what is the payback period in support of its claim to deliver low-carbon (dioxide) electricity to the grid?

16. **"...the objective of delivering cheaper, cleaner, and more reliable electricity to support future growth..."** (p18)
No country in the world has been able to achieve this objective. Whenever a power system has had 30% or more of its capacity reliant on wind and solar electricity generation: the cost to consumers of electricity soars; the grid becomes unreliable; global emissions rise as most of the wind, solar and batteries are manufactured in China, the world's highest emissions country by far; and once prosperous economies

decline.

Will the Proponent acknowledge that its project will not and cannot meet the objectives as stated?

17. "***Estimated Development Costs (EDC) $207,635,086 excluding GST***." (p34)
The capital costs of $208m equates to $3.46m/MW of capacity. This is about three times that of a HELE (coal), CCGT(gas) or nuclear plant, all of which can operate continuously and be adjusted to meet demand. The Proponent's project will spend most of its relatively short life being idle as it ramps up and down in accordance to the amount of sunshine available, not in accordance with the demand for electricity from consumers.

In addition, about 85% - 90% of the capital cost will be for imported components and labour. Thus, the actual Australian content and therefore the claimed economic benefits to the region and NSW are not anywhere near the claimed $208m.

Will the Proponent acknowledge they have misled the readers of their EIS as to the economic benefits and will they provide the Australian content value of their capital cost?

18. "***Operational Lifespan up to 40 years***" (p34).
An American study of all the solar works that had been decommissioned in the USA found the average lifespan to be 21 years. Numerous Australian solar works proposals state 20 - 25 years as their project's lifespan. While some others recently have stated up to 30 - 35 years and one even 50 years (subsequently forced at a hearing to admit only 20 - 25 years was more accurate).

When challenged about the unsupported lifespan estimate for their project they admit that a near total replacement programme of all major components (e.g. panels, inverters, transformers) would be required after 20 - 25 years to extend the project's life. However, the battery and inverter replacements are much more frequent.

Because PV solar panels, according to the manufacturers, have efficiency degradation rates of 2% initially and then 0.5% - 0.8%pa thereafter one has to consider not just the physical life but also the economic life of the project. The panels by year 25 may produce 22% less electricity and hence revenue for the project.

Lithium-ion batteries have even higher degradation rates. At just one charge/discharge cycle a day, and hence only one of the two daily peak demand periods can be serviced, the batteries will lose 24% of their efficiency by year 10. Also, the lifespan of batteries is considerably shortened if frequently discharged below 20% and recharged above 80%.

The importance of an accurate economic lifespan for the solar works component and

separately for the battery component cannot be overstated. The lifespan affects planning, such as the seriously flawed AEMO's ISP, comparisons with alternative generation sources, electricity generation estimates, capacity factor calculations, project viability, electricity system costs, subsidy estimates, "benefit" payments, replacement rates, decommissioning time-frames, etc.

The Proponent must amend its EIS and provide realistic life spans for both the solar works and the battery works so that readers, planners, decision makers are not misled as to the true nature of the proposed project.

Will the Proponent amend the EIS as proposed above? If not, why not?

Conclusion

Save Our Surroundings has directly addressed some of the more dubious claims made for the proposed project. We have provided arguments and evidence that such unsupported claims by the Proponent should highlight that the proposal has serious exaggerations, omissions and flaws that should result in rejection of the project. We have finished each of the points with specific question(s) to be individually answered by the Proponent.

In summary, the key points are:

- The actual experiences of Australia and other countries of 30% or more of wind and solar electricity generation are that '**the objective of delivering cheaper, cleaner, and more reliable electricity to support future growth'** does not eventuate. NSW already leads the country in record business failures and many households unable to afford energy bills. Australians already heavily subsidise wind, solar and BESS projects, which diverts funds from useful projects medical services for Gulgong. Chief Scientist, Dr Alan Finkel, stated that if Australia reduced its total carbon emissions to zero, that it would do virtually nothing to reduce global temperatures**.** Claims to the contrary by the Proponent is just green-washing.

- The risk of catastrophic fires are substantially increased, especially given the dangers of lithium battery fires, closeness of the site to Gulgong town, the increased difficulty for fire-fighters who cannot enter the site for safety concerns and, the weather vulnerability of the solar panels. Gulgong has already had fires in existing solar works. BESS fires are exceptionally difficult to control. Days of toxic smoke blowing over the town will result in mass evacuations. (refer Appendix A)

- Gulgong already has worker shortages and therefore claims of jobs for the Gulgong region are hollow. Instead we are expected to have 150 imported workers located in a labour camp not far from town. Gulgong already lacks basic medical services, dwindling numbers of volunteers, and poor availability trades people.

- Both our agricultural and wildlife areas will be reduced. With about 30 other projects proposed around Gulgong, the cumulative losses will mount rapidly.

- The Project would not produce any electricity most of the time, yet it will consume many more times the materials and land that modern base-load generating works do. More mining of a wider variety of minerals, more toxic processing, more manufacturing, more sea and land transportation, more land clearing, more land withdrawn from original use, more construction, more impacts on wildlife, more waste, and more frequent replacement are all leading to greater destruction of local environments and more creation of greenhouse gases. In addition, energy security and sovereign security are significantly diminished. This is unsustainable!

This project will not achieve its stated objectives but will do harm. Therefore it should not proceed.

Regards
Save Our Surroundings Central West NSW (SOS-CW NSW)

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.

email: saveoursurroundings@outlook.com

Appendix A

Fire destroys 500km2 (50,000ha)



February 2017 Central West NSW Leadville-Dunedoo fire front Why we hate grass fires

Photo taken from the RFS video. Part of Beryl solar works, near Gulgong NSW, is along the top of the photo. A close call!

Weather vulnerable. Toxic waste will go to landfill


Storm damage to a PV solar works Fire damage to a PV solar works

Solar panels damaged by hail. Off to landfill!