New South Wales Government
Independent Planning Commission

DENNIS ARMSTRONG		**OBJECT**	Submission ID: 239800
Organisation:	*Save Our Surroundings (SOS)*	Key issues:	*Land Use Compatibility/Conflict,Energy Transition,Cumulative Impacts,Traffic,Biodiversity,Visual Impacts,Social Impacts,Economic Impacts*
Location:	*New South Wales 2852*		
Attachment:	*Attached overleaf*		

Submission date: 18/02/2025 12:26

Save Our Surroundings (SOS) gave a truncated verbal submission to the IPCN on the 12 February 2025. The full version of that verbal presentation is shown at Attachment A. The presentation touched on some of our many concerns with the Department's Assessment of the Muswellbrook Solar & BESS Works proposal. These were summarised as points 1 to 6.

The enormous volume of research materials we have accumulated over the last six years, which is added to daily by our network of researchers, limits us on how much we can use in support of our submissions.

Despite all their resources, and perhaps because of them, the project proponents make a myriad of unsubstantiated claims, inconsistent statements and data, exaggerations, errors, omissions and misleading statements.

Please refer to the uploaded file for our full written submission. We look forward to the Commissions detail response to our submission.

Regards

Save Our Surroundings (SOS)

Muswellbrook Solar & BESS Works written submission to the IPCN

Save Our Surroundings (SOS) gave a truncated verbal submission to the IPCN on the 12 February 2025. The full version of that verbal presentation is shown at Attachment A. The presentation touched on some of our many concerns with the Department's Assessment of the Muswellbrook Solar & BESS Works proposal. These were summarised as points 1 to 6.

The enormous volume of research materials we have accumulated over the last six years, which is added to daily by our network of researchers, limits us on how much we can use in support of our submissions.

Despite all their resources, and perhaps because of them, the project proponents make a myriad of unsubstantiated claims, inconsistent statements and data, exaggerations, errors, omissions and misleading statements. Unfortunately, the Department of Planning appears not to address the detailed issues and questions that SOS raises, nor require the Proponent to do so. We hope the Commission will not follow suit.

In the interest of brevity we have created the table below as a high-level expansion of the concerns raised in our verbal presentation. We trust that the Commission in its decision report will both acknowledge the content of our submission and either accept the evidence/arguments or publically reject those they disagree with, including reasons for rejection.

Should the Commission still decide to approve the project then as a minimum the following conditions should be imposed.

1. an indexed bond be lodged upfront to provide for any future end-of-life activities, including disposal

2. widespread soil testing for the toxic components of solar panels and batteries, including nanoformed materials, be done prior to installation, again when any panels or BESS components are damaged and every 3 years regardless.

3. the site be protected by a boundary sprinkler system, strategically located pressurised fire hydrants and safety structures

4. the VPA with Council be increased to reflect the DA lodgement fee of 1% of the capital value, not the under 50% on offer

5. the Proponent provide an analysis of its embedded emissions and how these will be abated as a result of the project.

Table: Summary of concerns

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
1	Emissions reduction is the primary justification for the project.	Embedded emissions ignored, which are significant. No emissions analysis provided to justify project. No life-time comparisons with similar projects let alone other generating options. No evidence that project will have of any affect on climate. Now legislated that large companies must report scope1,2 and 3 emissions. Will it apply to solar, wind, BESS, pumped hydro and the new transmission network?	Assessment report. Federal legislation effective from January 2025.
2a	Project life approximately 35 years	Exaggerated life, misleading and inconsistent claim. Summary refers to approximately 35 years that can be extended (p4.). Body of report says 20 - 30 years (p56). Other Applicants of solar projects state 20-25 years life. Why the differences for Muswellbrook? No distinction between physical life and economic life, the latter being much shorter due to PV panel efficiency degradation (2% first year, 0.5 -0.8% pa thereafter). Average life of solar panels is 21 years according to two sources. BESS batteries and inverters must be completely replaced within 15 years and typically much less than that (10 - 12 years). Batteries degrade rapidly and about 74% of capacity by year 10 (one charge/discharge cycle between 20% and 80% daily) The BESS should be treated as a separate project, just as	Assessment report. Study of all USA decommissioned solar works (excluding shorter life BESS). Sustainability Victoria circular on its website states, "The average lifespan of a solar panel is approximately 21 years and recycling options are limited". PV panel degradation rates are from manufacturers' specifications. BESS data from Coleambally BESS response to SOS submission

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
		standalone BESS projects are assessed more fully.	
2b	Provide electricity for up to 54,000 homes (p59)	Clearly a misleading statement. Homes require 24/7 electricity as long as at least one refrigerator is operating. No electricity is generated most of the time from the PV solar panels . The BESS, even if fully charged, will unlikely not be used for more than 1.6 hours at capacity as the life is considerably shortened if discharged below 20%. The Proponent did not directly address the concerns raised by SOS and Dept. of Planning did not insist they do, despite requests by SOS.	Assessment report. Sufficient sunshine unavailable most of the time and intermittent output even in daylight hours. BESS data from Coleambally BESS response to SOS submission
2c	Peak construction workers 200 (p54) "... 108 workers (54%) would be from the local and regional area..." "...92 construction workers (46%) would be non-local workers"(p56)	200 quoted in summary, which is misleading. Body of Assessment states 200 for 1 month with average of 16-80 for the other 12 months. How does the worker split make sense if average is under 80? Local businesses and services may be misled into gearing up for an influx of 200 workers only to be disappointed.	Assessment report.
2d	Box Gum destruction of 113ha is a small percentage of NSW total woodland habitat. Use of Biodiversity offsets mitigates the losses.	Misleading and inconsistent justification for Box Gum species destruction as it compares local loss as a percentage of NSW-wide Box Gum woodland, rather than say a 15km radius from the site. The latter approach would highlight the significant cumulative loss of woodland and other flora and fauna species. Biodiversity Offset Scheme is ineffectual, so mitigation strategy is flawed. The scheme was never intended to address the large-scale destruction of wildlife areas caused by wind,	Assessment report. NSW Audit Office 30/08/22 report criticised effectiveness of the Biodiversity Offset Scheme. "The effectiveness of its implementation has also been limited. Key concerns around the Scheme's transparency, sustainability and integrity are yet to be fully resolved."

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
		solar, BESS, pumped hydro and thousands of kilometres of new transmission lines. In fact, regulation of the whole renewables industry is very poor and lacking basic accountability and transparency.	
2e	Host agreement should contain the requirement that the owner/operator is responsible for decommissioning and rehabilitation. "..the owner/operator of the project should be responsible for the decommissioning and rehabilitation and this should be reflected in an agreement with the host landowners(s)." (p64)	Host and neighbour agreements are secret with non-disclosure clauses and, according to feedback to SOS, often very onerous conditions re maintenance and end-of-life. No way of knowing what is in these agreements and who has what responsibility. No condition imposing this obligation. No way of verifying who is responsible. No requirement for a bond to cover the inevitable high cost of decommissioning, rehabilitation and disposal. "should" does not equal "must".	Assessment report. Premier Minns stated once that he hoped that the hosts be appropriately compensated for taking on decommissioning liabilities but that was a commercial arrangement. Confidential feedback from the SOS network.
2f	Battery storage (p50) "The PHA concluded that the risk profile of the project was tolerable and that the resulting consequences are not expected to have significant off-site impacts." No mitigation of toxic smoke release during a battery pack fire nor ground and water contamination.	There is no effective way of dealing with the toxic smoke from solar component and BESS fires. Such smoke and fire-damaged components have already caused injuries, evacuations, soil and water contamination. Regional areas dependent on tank water and dams are particularly at higher risk, as are townships too close to the industrial works, such as Muswellbrook solar and BESS.	
2g	"The Department notes that the Insurance Council of Australia is not aware of any instances where Insurance Council Members have been unable to provide insurance or have increased premiums as a result of a farm (or a neighbouring property) hosting energy infrastructure." (p56)	SOS is aware. A large scale farmer has a $750m solar works being built next to his property. He has a $20m public liability insurance policy. Asked his broker to get quotes for $750m cover. Answer: would need 15 insurance companies to take up $50m each but nearly all will not insure above $20m. Premium would be $350,000pa	Assessment report. Copy of quote from broker to client 27/05/24. Extract: "You asked if it was possible to obtain $750million of Public Liability cover. To do such a thing would require 14 insurers to provide

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		plus charges but such cover is not viable. Hence, farmer will bear the risk!	excess layers of $50mil each. Including the primary insurer at $50mil. It would not be viable to obtain such cover for a number of reasons."
2h	No validation against similar projects	All approved projects are part of a system yet they are treated as one offs, like a warehouse or residential building. However, lots anomalies arise when similar projects are compared, yet they all should produce exactly the same product (alternating current to a specified standard). Key parameters such as capital cost/MW, life spans, emissions "saved", capacity factors (if even provided), BESS MW/MWh, batteries/inverters replacement lifecycle (if even mentioned), workforce size, vehicle movements, construction duration, VPA values, economic benefits, water requirements, extent of environmental damage caused, extent of agricultural land removed from food production, etc.	Numerous SSD project applications (EIS)
3	Economic benefits of project beneficial to community and NSW "Through job creation and capital investment and a planning agreement with Council, the project would also stimulate economic investment in renewable energy and provide flow-on benefits to the local community." and "...the project is in the public interest..." The Department considers that the project would have a positive socio-economic impact on the local community (p55)	Economic benefits as presented fail basic analysis, as the offsetting economic costs and realities are ignored. A positive impact is only claimed because the negative impacts are not costed or are ignored. Very little Australian content in the $302M capital value, hence investment benefit is overstated. Job creation and flow-on benefits are overstated as most workers will be imported from overseas (pay little tax,	Assessment report. A study suggests 12-15% Australian content. Peak industry bodies have raised concerns. Aluminium smelters are less viable due to very high energy costs ($2 billion subsided announced). Our only fertiliser factory closed down, and our only plastics manufactory is to close.

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
		repatriate $ overseas). The lost food production revenue and lost business to the community is substantial. Local businesses, and indeed businesses and manufacturers across Australia, are failing or relocating overseas or requiring government financial bailouts due in whole or in part to ever-rising high electricity costs. VPA is less than half of the 1% DA lodgement fee and not payable upfront as it is for locals. Taxpayers funds and interest on government borrowings to fund the subsidies for the project are ignored. Extra costs of providing services to the workforce are ignored. Increased accommodation and business costs are ignored. Impact of higher electricity costs for all consumers is not in the public interest.	Small businesses, especially in the hospitality industry and food industries are closing down in huge numbers or struggling to survive.
4	Project is sustainable	This is not a sustainable project. Very high material resources requirement per MWh of output compared to other alternatives, except wind. Before this project is decommissioned another equivalent project must be commissioned to ensure continuity of supply. That means twice the land and resources required. More mining, more toxic processing, more transport, more cost to the grid, etc. Australia only has 4% arable land. The majority of renewables project are intended to on this land, so decimating our food production capability and also being in contravention of	Assessment report. SOS paper "Wind and Solar Resource Requirements are Unsustainable v2" Paris Agreement Article 2b https://tradingeconomics.com/australia/arable-land-percent-of-land-area-wb-data.html

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
		Article 2b of the Paris Accord/Agreement to which Australia is a signatory. In addition, the massive current and future waste and debt repayments are for future generations to deal with. This is inequitable and the precautionary principle has been ignored.	
5	Solar farm poses no risk to the environment by contamination (p50, p64) B28 Soil & Water mgt plan does not include PV panel, battery, transformer etc before and ongoing B29 Fire safety study only refers to BESS, no toxic smoke control B30 no reference to solar panels or other components, such as batteries and oils in components. B31 Very small onsite water supply (50,000 - 80,000L)	Untrue. Not measured so how do they know? Type of panel or batteries or their source are not stated at time of assessment. Would a skyscraper be approved when the type of external cladding was not specified? Lots of experiments and research prove PV panels leach toxic substances that can enter the food chain. More research is required as modern PV panels use nanoform materials that behave differently to the original materials in solar panels i.e. even more dangerous. Why do the Proponents and the Department resist a condition for doing baseline soil testing and frequent ongoing testing for known dangerous materials in solar panels, batteries and other components?	Assessment report. Victorian EPA and European Union (WEEE) declare all PV solar panels as e-waste and by definition hazardous to human and animal health. **As the Victorian government's Sustainability department states in January 2025:** **an estimated "...more than 100,000 tonnes of solar panels will enter the waste stream by 2035.", which "... can leach into soil and groundwater, causing environmental contamination and safety concerns".** Various research papers e.g.: https://www.researchgate.net/publication/343158391_Third-Generation_Solar_Cells_Toxicity_and_Risk_of_Exposure https://pmc.ncbi.nlm.nih.gov/articles/PMC9860350/ "Communities can be impacted by lead leaching from damaged modules, contaminating nearby groundwater and soil."
6	Cumulative impacts are acceptable	No! They are not acceptable. Productive land loss, wildlife loss, social cohesion loss, transport costs increased, productivity reduced, amenity loss, increased subsidies divert resources that could be used for improving roads, medical	Assessment report.

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
		services, education, and defence. Increased fire and toxic smoke risks accumulate across fire prone and fire impacted regions. Massive current and future waste created.	
7	Community concerns addressed	Only selected categories are addressed, often lumping together diverse concerns and issues, while ignoring valid and supported issues. SOS, which represents the views of many dozens of impacted communities and groups, often provides detailed and supported arguments followed by specific questions. Rarely are any, let alone all, addressed.	Assessment report.
8	Fire risks migrated	Fire risks from solar, wind, BESS and HV transmission lines are increased, especially for the rural areas. No mitigation will stop a catastrophic, regardless of the ignition source. BESS fires , solar works fires, wind turbine fires, grass fires, bushfires, and lithium battery fires are occurring in Australia with greater frequency. The result is increased injury and deaths, increased property damage, increased contamination and insufficient resources to cope with these increased risks.	Assessment report.
9	No weight given to no social licence or lack of consent	56 objections to 6 submissions in support means the project does not have social licence or consent for its project. Over 90% objections is a typical result. Yet no weight is given to the overwhelming rejection of such projects. Community members are expected to attend sessions to read and fully understand thousands of pages of documents and then submit their objections. When they do make the sacrifice of	Assessment report.

No.	Claim in EIS/Assessment or omission	Concern/Comment	Source/evidence for concern
		their valuable time they are ignored. However, the consultation box is ticked off by the Proponent and the authorities.	
10	Biodiversity mitigation is acceptable	Biodiversity offsets allow flora and fauna destruction at a local level. Cumulatively, a local area could lose many endangered species for their locality. Why is this tolerated by the authorities, when farmers and others are strictly monitored for just clearing a tiny portion of their land to help feed the world?	Assessment report.

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.

Attachment A

SOS talk on Muswellbrook Solar & BESS Works IPCN phone-in 12/02/2025

Good day Commissioners

SOS has many concerns with the Department's Assessment of the Muswellbrook Solar and BESS Works. For instance:

1. **reporting of scope 1, 2 and 3 emissions were legislated in January 2025, yet the Proponent has not even disclosed how its project actually offsets just its embedded emissions, which we know to be substantial**

2. **misleading or inconsistent statements, such as project life, ability to service 54,000 households, construction worker numbers, justification for destruction of Box Gum species, host agreement responsibilities, no toxic smoke consideration, full public liability insurance for host and neighbours is impracticable, and no validation against similar projects**

3. **overstating financial benefits by ignoring the taxpayer subsidies and ever-rising electricity costs to consumers associated with the project**

4. **unachievable sustainability is ignored**

5. **toxicity risks to nearby residents and others are understated or ignored**

6. **cumulative impacts are understated or ignored**

I will touch on just three of the foregoing, namely:

1. **Sustainability**
2. **Toxic contamination and**
3. **Cumulative impacts**

Sustainability

A United States Dept of Energy Quadrennial Review, Table 10 shows materials throughput by type of energy source. The mass of materials in tonnes/terawatt hour for just the solar works component is many times that of other types of electricity generation. Understandable when the solar works is idle around 75% of its lifetime.

Using Australian data, SOS has calculated that solar works, excluding a BESS and other components , require up to 6.8 times more tonnes of materials per megawatt hour of lifetime generation. Our result is consistent with that of the DOE but we use project specific data obtained from manufacturers, project proponents, government agencies and verifiable research.

As the Victorian government's Sustainability department states in January 2025:

1. **an estimated "...more than 100,000 tonnes of solar panels will enter the waste stream by 2035.", which "... can leach into soil and groundwater, causing environmental contamination and safety concerns". This is the fastest growing waste in Australia, with no current solution to dealing with it.**

2. **"The average lifespan of a solar panel is approximately 21 years and recycling options are limited."**

3. **despite a number of recycling plants in Australia "... up to 17% of a panel by weight" is recycled or reclaimed. "The remaining 83% of a solar panel's materials (including glass, silicon and polymer back sheeting) are not currently recyclable in Australia."**

But that is not all that is not sustainable. The BESS materials and lack of recycling of batteries is a further waste of resources compared with less material intensive methods of electricity generation.

Sustainability Victoria states that, "The most common battery storage for solar is lead-acid and lithium-ion batteries, which last between five and 15 years." For the Muswellbrook BESS that is about 1500 tonnes of lithium-ion batteries to be disposed of every 10 years. Little recycling of these batteries currently occurs.

Clearly, the Muswellbrook solar works and components are not the sustainable source of energy generation as claimed.

Toxic Contamination

The Department claims that the PV solar panels, of which there are many types, are safe unless ground into a powder. There is a great deal of research and evidence that this is not the case. The Victorian government and the European Union declare that all solar panels as e-waste because of their toxicity. Solar panel toxicity is a fact, not a 'renewables scepticism'.

Damage to a solar panel and the toxic danger can occur at any stage of its life. We have already had B-Double trucks loaded with thousands of solar panels roll over in the Hunter region. We had 18 hectares of solar panels damaged by fire at Beryl solar works in 2023.

In situ solar panels in Australia have been widely damaged by hail, wind and fire. Burning panels, inverters and batteries give off highly toxic smoke.

Lithium-ion batteries burn for days and the toxic smoke has already caused large-scale evacuations, injuries, water and soil contamination. Two BESS fires, 10,000 lithium battery fires across Australia and a lithium mine fire in WA. These examples highlight how dangerous and unpredictable these fires can be.

Yet, this and nearby projects are located in a fire-prone zone and only a short distance from housing estates. People with water tanks are particularly at risk.

The assumption that such risks can be ignored shows little regard for the safety and welfare of people and animals.

Cumulative impacts

To justify the large-scale destruction of native habitat, including the Box Gum, the Department justification looked across all of NSW to minimise the local impact on Muswellbrook.

However, when assessing the traffic impact it only considered local roads and ignored the cumulative impact of the thousands of extra truck movements over the hundreds of kilometres of common route proposed for dozens of

overlapping projects within the Hunter Central Coast, New England and Central West Orana REZs. Traffic congestion and delays in moving goods and travellers will be increasingly less efficient and costly. Cost to not considered by the Dept.

The cumulative demands for water by all the projects just in the Hunter Central Coast REZ is substantial. For example, just one 400MW project required water equivalent to 8% of an entire town's consumption in the CWO REZ.

Conclusion

May I conclude by asking the Commission to impose conditions that address some of the risks of this project, namely:

6. **an indexed bond be lodged upfront to provide for any future end-of-life activities, including disposal**

7. **widespread soil testing for the toxic components of solar panels and batteries, including nanoformed materials, be done prior to installation, again when any panels or BESS components are damaged and every 3 years regardless.**

8. **the site be protected by a boundary sprinkler system, strategically located pressurised fire hydrants and safety structures**

9. **the VPA with Council be increased to reflect the DA lodgement fee of 1% of the capital value, not the under 50% on offer**

10. **the Proponent provide an analysis of its embedded emissions and how these will be abated as a result of the project.**

We have only touched on a few issues, many of which we have detailed previously to the Department and the Commission.

The Department, as SOS does, should create benchmarks to compare similar project proposals, rather than assess each project individually. They are part of a system and must be assessed as such. Comparatively poor projects should be rejected.

SOS should not be ignored just because our unfunded extensive apolitical research, analysis and papers are undertaken by volunteers and are free.

Do you have any questions?

Thank you for your time.