This objection serves as notice to Ark Energy and NSW Government that any future injury, harm, illness and/or loss of life, assets and commerce that are attributed to the approval and/or construction of this project will be subject to litigation.

The Richmond Valley Solar Farm and associated BESS facility is a dangerous and reckless proposal considering the large scale of the project, the risks and hazards that it intrinsically creates, and its immediate proximity to existing local residences/ properties and dense biodiverse native forests.

I strongly request NSW Government assessors reject Ark Energy's proposal based on the unmitigable risks and hazards that it forces upon the existing local key stakeholders, properties, businesses and wildlife.

I also request Ark Energy directly and comprehensively address every following objection response to their submitted EIS and related assessments:

With regards to Appendix 06 - Mitigation and Management Measures:

Bushfires
B-01:
- What does *"reasonable worst case bush fire scenario"* mean?
- How can any reasonable scenario be accurately modelled or studied without referencing similar sized large scale solar farms built on similar terrain, similar latitude, similar environment variables that impact the intensity of bushfires, adjacent to very dense native forests and active rural residences.

B-02: *"to ensure electrical equipment is not installed incorrectly resulting in an ignition site"*
- This does not eliminate the inherent risk of equipment failure, fatigue or malfunction resulting in an ignition site. Will Ark Energy or the product manufacturers be open to litigation in the case that this occurs where life/assets are lost or adversely impacted as a result of critical equipment/component failure?

B-03: If you are implementing a bushfire emergency plan for on-site workers that*: "exclude workers to the effect of potential bushfire attack"* and eliminates *"workforce exposure to bushfire threat"* why then are local key stakeholders and residences who are impacted by this project not extended the same degree of duty of care and liability? The same bushfire risk that Ark Energy refers to has the potential to be exacerbated and or influenced by the very existence of the RVSF and BESS.

B-07, WT-01: The immediate proximity of the RVSF and BESS to dense forest vegetation and surrounding residences/properties in a bushfire prone zone demands early investigation into water resource requirements for firefighting. How can NSW Government make a sound assessment without Ark Energy having demonstrated firefighting water supply is not only readily available, but also reliable and in excess of any worst case scenario demand?

Hazards

H-02: *"detail emergency response procedures including an evacuation plan for site personnel, the associated dwelling and surrounding premises"*

- If "surrounding premises" are listed are listed for an emergency response plan, surrounding properties are clearly at risk; a risk they do not consent to. As such, Ark Energy will be liable for any attributed risk in the event of injury, loss, harm, damage or illness to surrounding premises occupants, livestock, crops and assets.

H-03: *"in accordance with the PHA BESS purchase, design, configuration, operation and maintenance activities will be in line required national and international guidelines"*

- Do these guidelines take into account incorrect installation, faulty equipment and/or abnormally behaving battery chemicals?
- Also, do these guidelines provide legal impunity to Ark Energy in the case of loss, harm or injury to surrounding properties, lives or wildlife?

H-04: "Training will be provided for all personnel responsible for operations, maintenance and emergency response"

- As surrounding premises are unwillingly being placed at risk, will training or safety advice be offered or provided to residents in close proximity?
- Will any training or safety advice be offered to residents in close proximity regarding flooding hazards and the use of Avenue Road with a modified project landscape and roadside fencing which will influence the behaviour of water currents and flow during floods?
- Will warning signs and training be provided for locals regarding glint and glare impacts on vision and car driving along Avenue Road?

Contamination

C-01/2:

- What detection methods will be in place to identify local contamination? Will this include surrounding properties and downstream properties?
- Why is there no contamination detection and investigation measure detailed for after fire/bushfire/flood events that involves the project site? Any airborne or water borne chemical from the site has the potential to infiltrate surround property water sources and food chains where residents consume food and water from the land. Ark Energy will be liable for any such contamination and or health issues as a result of contamination resulting from fire and flooding events on the project site.
- Why is there no comprehensive list of all flammable or soluble chemicals that will be used and or installed on site? Key stakeholders and neighbouring properties should be made aware of any carcinogenic chemicals that can be potentially made air/ waterborne during fire/flooding events and normal operation.

Landscape and Visual

LV-01: *"A 30 m biodiversity corridor will be established along the northern boundary of the Project Area"*

- Increasing the flammable load along the fenceline of neighbouring properties is increasing the risk of fire propagation from the solar farm into neighbouring properties. There is no justification for using a potentially lethal measure as a form of visual mitigation; let alone how long the trees will take to provide any degree of effective visual screening (several years to decades). Until that point, no visual mitigation would have been taking place and the local neighbouring properties would be at increased bushfire risk. This is a massive liability issue for both the potential of loss of life and assets in addition to an ineffective and slow growing visual mitigation process that would adversely impact the wellbeing and comfort levels of local residents due to its ineffectiveness.
- How can Ark Energy's glint and glare assessment study state that screen planting is not an option for mitigating glint and glare to the road due to the area being within a bushfire prone zone (p.90), yet the same mitigation (at 30m deep) along the fencelines of neighbouring properties is suggested as the only acceptable and safe form of visual mitigation (LV-01)? This is dangerous and reckless considering the areas known bushfire propensity and the lives at risk.
- Does Ark Energy consider the living, breathing local residents, livestock and wildlife of less value to protect than their solar panels? I strongly request both Ark Energy and NSW Government assessors correct this disgraceful mitigative measure for residents, one that is not compatible with the intrinsic risks of this area; if its not safe for solar panelling and traffic along Avenue Road, its definitely not safe for living, breathing residents, families, livestock and wildlife on their fenceline.
- Ark Energy's glint and glare assessment determines our property as having 75-100% visibility to the project site (the most severe level), yet at the same time within the "key findings" for visual amenity, Ark Energy states that the "Project infrastructure is unlikely to alter the existing visual landscape of the Project Area outside of its immediate vicinity" (p. xiii executive summary). Why has Ark blatantly asserted two opposing realities here in different segments the submission?

Lighting
LV-02:
- How many lights, in total, can there potentially be alight during evenings on site?
- How many lumens are these lights and at what distance?
- Are there lights on every panel?
- Do the lights generate any kind of noise? If so, at what resonance, and how many lights at each resonance?

Glint and Glare
GG-01: *"If the PV arrays 6,10 and 19 (which have been identified as having the potential to for 'yellow' glare) are found to cause 'yellow' glare during operation"*
- What checks and balances are in place to monitor the accuracy of Ark's glint and glare modelling?

With regards to the EIS:
6.4.3.1: *"The single-axis tracking frames of the solar arrays, constructed from heavy-duty steel, are likely to resist fires and prevent the spread of internal electrical sparks beyond the immediate area of the fault"*
- *"likely to resist fires"* is not a confidence inspiring statement from a company who plans to install approximately 730,000 combustible PV panels atop these frames. How likely? What does that mean? There should be no uncertainty as to the frames ability to remain both structurally sound whilst not contributing to the ignition of the combustible PV panels they cradle. If there is any possibility that the frames can contribute to fire propagation or adverse thermal radiation during fire events, this must stated. Omitting this critical information is dangerous to the safety of local residents and NSW Government making a sound assessment of the project risks.

3.3.2. Solar Panels
- No details of chemical composition of panels
- No safety data sheet provided for these chemicals (I have previously asked for this directly from Ark Energy engineer Dan)
- No details of which components are flammable, and at what temperatures/exposure/duration etc?
- No details of carcinogenic hazards (both within the panels and upon any combustion reaction)
- No details regarding panel efficiency, and at what rate their efficiency diminishes over the years?
- No details regarding measurements of thermal radiation for PV panelling (both individual and cumulative)
- No details regarding any leeching of chemicals or physical product degradation rates expected due to weathering and UV impact over the project's lifespan.
- No details for any risks to neighbouring properties/firefighters if these chemicals become airborne during fires?
- No details for any risks to neighbouring properties/wildlife if these chemicals enter the food chain through soils and water contamination?

6.7 Hazards and Risks
There is a total omission of the PV panels and their hazardous composition.
- What are the total quantities of hazardous materials present within the proposed 730,000 PV panels?
- What are their classification?
- What chemicals are carcinogenic?
- What chemical compounds are produced during any combustion of these panels, and at what quantity?
- This is an unacceptable failure to be forthright concerning the hazards and risks that the project's PV panelling creates. This serves as a public notice to NSW Government that the hazards and risks of the solar PV panelling proposed by Ark Energy must be assessed in regards to their toxicity and potential impacts to surrounding residents in

the case of ingestion through air, water or soil contamination.

Biodiversity
- The endangered coastal emu and koalas are present on the project site, we have viewed them from our property. Their presence is being clearly downplayed by Ark Energy. We witnessed night survey crews spotlight known koala positions near our shared fenceline.
- The destruction of wild dog and other pest habitats on the project site will inevitably push them onto neighbouring properties, increasing their risk to livestock and native wildlife harm. (p.214 EIS)
- The biodiversity corridor suggested will endanger the lives of residents and livestock in the case of fire events. Not only is it increasing the fuel load for fires on the fenceline of residences in a bushfire zone, it will take many years for the trees to grow to height and density that is at all useful for both wildlife and visual screening. There are clearly other segments along Avenue Road that can provide a biodiversity corridor without increasing the risk to neighbouring properties. Ark Energy has chosen this northern border as a biodiversity corridor as it conveniently ticks the box for both visual amenity and wildlife sanctuary, albeit at the detriment of public safety.

With regards to Appendix 08 - Bushfire Threat Assessment:
- Why are the PV panels not thoroughly investigated for their potential influence before, during and after fire events?
- This would include, but not limited to: chemical composition, safety, combustibility, total volume/weight load throughout the site, combustibility studies regarding the specific model of PV panel, how much thermal radiation the panels will produce during operation and during combustion, what chemicals are flammable, what protective respiratory equipment should be utilised in the case these become airborne, what distance between panels will stem propagation, what fire suppression systems can combat such PV panel combustion for up to 730,000 panels, what expertise and or training would be required by firefighting personnel to effectively suppress PV panels at 4m.
- As PV panels are sloped and remain energised at high voltage at all times under sunlight, typical firefighting methods and techniques are not encouraged by peer reviewed studies. Let alone toxic fumes being breathed by nearby residences, livestock and wildlife (*A Review on Safety Practices for Firefighters During Photovoltaic (PV) Fire Published: 23 May 2022 Volume 59, pages 247–270, (2023)*
- I'm perplexed as to why Blackash Bushfire Consulting omitted this critical fire assessment information considering I personally brought this up with Ark Energy and Umwelt consultants numerous times in person. Were they following an Ark Energy/ Umwelt directives, or was it a simple oversight by experienced senior bushfire experts Lew Short and David Lemcke to not investigate the actual hot componentry that makes a solar farm, a solar farm?
- Just so its clear, solar PV panels *are* combustible, and as such should be

comprehensively investigated for fire risk, propagation and hazardous smoke seeing as 730,000 panels are to be installed on the site near existing residences, livestock and wildlife.
- There is a plethora of peer reviewed evidence that confirms the inherent risks of PV panelling; a simple 1min online search found a couple starters for your enlightenment:
- *Experimental Studies on the Flammability and Fire Hazards of Photovoltaic Modules*. Materials (Basel). 2015 Jul. 8 (7):4210-4225. Published Online 2015 Jul 9. Hong-Yun Yang et al.
- *Experimental study on burning and toxicity hazards of a PET laminated photovoltaic panel*. Solar Energy Materials and Solar Cells. Vol 206. Mar 2020. Baisheng Liao et al.

Thank you.