EIS Submission – Mayfair Solar Factory – Objection – Stan Moore 15JAN2025

CONTAMINATION AND POLLUTION

The NSW Department of Planning has previously advised the Independent Planning Commission "that to readily release contaminants into the environment, the solar panels would need to be ground to a fine dust…."

The Large-Scale Solar Energy Guideline, Frequently Asked Questions (Guidleine FAQ) provides the following advice on whether solar panels contaminate soil (page4):

> *The metals in solar panels (including lead, cadmium, copper, indium, gallium, and nickel) cannot be easily released into the environment. This is because metals such as cadmium telluride (CdTe) or cadmium sulfide (CdS) are enclosed in thin layers between sheets of glass or plastic within the solar panel. Because of this, the use of metals in solar panels has not been found to pose a risk to the environment.*
>
> *To readily release contaminants into the environment, solar panels need to be ground to a fine dust.*

The Independent Planning Commission has as recently as July 2024 requested the Planning Department to provide further information on contamination risks associated with solar panels. The Department's response included reference to the Guideline FAQ and noted that it was informed by the advice from the Environment Protection Authority (EPA).

Whenever the issue of contamination by solar panels was raised in the past the Independent Planning Commission has accepted the advice contained in the Guideline FAQ. The Independent Planning Commission has also said in the past that "in the absence of any robust contrary evidence", that the risk of contamination from damaged and/or degraded solar panels is minimal.

Well, here is the robust contrary evidence.

Researchers at the Institute for Photovoltaics and Research Centre SCoPE, University of Stuttgart and the Institute for Sanitary Engineering, Water Quality and Solid Waste Management, University of Stuttgart, 70569 Stuttgart, Germany published a paper on 29 January 2021 titled **Leaching via Weak Spots in Photovoltaic Modules**.

Abstract:

> *This study identifies unstable and soluble layers in commercial photovoltaic modules during 1.5 year long-term leaching. Our experiments cover modules from all major photovoltaic technologies containing solar cells from crystalline silicon (c-Si), amorphous silicon (a-Si), cadmium telluride (CdTe), and copper indium gallium diselenide (CIGS). These technologies cover more than 99.9% of the world market. We cut out module pieces of 5 X 5cm2 in size from these modules and leached them in water-based solutions with pH4, pH7 and pH11, in order to simulate different environmental conditions. Unstable layers open penetration paths for water-based solutions, finally the leaching results in delamination. In CeTe containing module*

pieces, the CeTe itself and the back contact are unstable and highly soluble. In CIGS containing module pieces, all of the module layers are more or less soluble. In the case of c-Si module pieces, the cells' aluminium back contact is unstable. Module pieces from a-Si technology also show a soluble back contact. Long-term leaching leads to delamination in all kinds of module pieces; delamination depends strongly on the pH value of the solutions. For low pH-values, the time dependent leaching is well described bu an exponential saturation behaviour and a leaching time constrant. The time constant depends on the pH, as well as on accelerating conditions such as increased temperature and/or agitation. ***Our long-term experiments clearly demonstrate that it is possible to leach out all, or at least a large amount of the (toxic) elements from the photovoltaic modules. It is therefore not sufficient to carry out experiments just over 24h and*** **conclude on the stability and environmental impact of photovoltaic modules.**

Robust and credible research has been conducted by Stuttgart University that there is a distinct possibility that there will be leaching of solar panels. There is also the possibility of inverter or battery accidents which would lead to pollution. A copy of the Stuttgart University research is attached.

Pollution and Contamination Concerns:

- Properties and their water may be contaminated by water run-off from the solar site
- Livestock producers as part of their accreditation are required to identify risks and now they have an additional contamination risk which will have to be managed at an additional cost, presuming it is able to be managed.
- Soil contamination of the solar site and neighbouring properties is also a likelihood.

DECOMMISSIONING AND REMEDIATION

Solar panels will simply rot in the paddocks in 25 to 40 years time.

Little detail appears in the EIS regarding decommissioning and remediation.

It is fairly clear that decommission this project will not be carried out by the developer because they have no intention of owning, running and managing this project. These developments change hands regularly, so who will be responsible for decommissioning and remediation?

The last owner will be a "Shelf CompanyName Australia Pty Ltd" with no asset backing and they will walk away from decommissioning as the current value decommissioning cost will be over $135,000 per MW according to the model calculator in the Renewable Energy Planning Framework.

The cost of decommissioning will far exceed the value of the land on which the solar panels and infrastructure are located, therefore the landowner will also walk away leaving the cost for the taxpayer or rate payer. It is therefore unlikely that a cleanup will ever occur.

Also, decommissioning does not include remediation. The remediation cost is likely to be very costly as the contamination from the solar panels leaching will be toxic and dangerous. Solar factory pollution and contamination is likely to be the next asbestos.

It is beyond our comprehension that governments at all levels and of all hues have let the large scale renewables sector get away with this outrageous lack of accountability to the future and to future generations on the question of decommissioning.

By not requiring the developer to lodge a decommissioning/remediation bond is a further subsidy provided to the developer.

END.