

My name is Geoff Potts and I have lived on the property known as "Balmoral" at 161 Salisbury Plains Rd for close to 8 years. I am very concerned about the feasibility and viability of the proposed solar farm in this district.

The majority of Balmoral and the next property to the east sits on a flood plain. Over the time I have lived on Balmoral there has been to significant flooding events where there has been up to 2 feet of water over the majority of the flats for 2-3 days and when the water has gone there is left many seepages that can bog a vehicle for up to 2 months and are visible now during the current dry spell with significant cracking visible.

I believe that the amount of power calculated to be generated by this project is severely flawed as the area of Balmoral and the adjoining property to the East is severely impacted by heavy fogs that usually start from late April and can occur through until late September. These fogs often hang around until 11 am and with the limited daylight hours of winter will significantly reduce the amount of power that can be generated over 30-50 days. The proposed area also experiences extreme cold through winter with a significant number of days going below -7 and on occasions lower than -10 at the house which would put the flats even lower than this.

The issue of a potential fire hazard has not been addressed as when there is good season the grass and wild oats often reach fence height and if can not be kept under control by sheep present a great fire risk from a lightening strike.

The other potential problem that has not been addressed is how they intend keeping the panels clean to ensure the full effectiveness of the panels, currently we have a major issue with hoppers and at times when the army worms appear the ibis's come in their hundreds.

There has been no answer given as to the effect these low temperatures will have on the lifetime of the panels. The frosts generated over winter are significant with water often being frozen until 11 am and water in troughs being frozen by 1 inch even in the sheds.

The project in the Salisbury Plains will have significant impact on the bird habitat in the district. The Lagoon which is in a 4km radius of Balmoral attracts many species of migratory birds as well as black swans. There is significant overseas research to show the negative effects of large scale solar farms on migratory birds. Of recent times there has also been considerable effort put into rebuilding of the Raptor population, this has included efforts to build up the Wedge Tailed Eagles to a sustainable level as well as the Perigan Falcons.

The project has stated that they will plant trees along the fence lines to hide the project to some extent.

I have attached a photo of the trees planted along the fence line at Balmoral that are around 7 years old and it can be clearly seen that they have a long way to go before they will provide anything of significance.



I have attached a couple of articles that could support our case.

The notion that the area could be grazed by sheep is open to question as there has not been enough research done on the effects of heavy metal leaching, the effects on fertility and the problems associated with husbandry of sheep under the mass of panels

Solar Energy

Solar energy provides substantial environmental advantages when compared to conventional energy sources and it is potentially the cleanest means of energy production. Investment in this sector is growing significantly at a rate of about 40% per year, at the moment solar only accounts for less than 1% of electrical generation worldwide. Across the flyway, there is huge potential for the development of solar power generation, given the predictable and intense solar radiation available for most times of the year.



World Bank Photo Collection - Flickr

There are four different technologies which are used in solar energy generation.

1. **Photovoltaic/Concentrated Photovoltaic:** which converts the sun's energy directly into electricity to be exported to the grid;
2. **Concentrated Solar Power (CSP):** which uses mirrors to concentrate the sun's rays and a fluid based system to drive steam generators which deliver electricity to the grid;
3. **Solar thermal heating:** uses panels for water heating, directly using sunlight to warm water. Panels are usually mounted on the roofs of buildings with a simple arrangement of dark-coloured water pipes beneath the glass. This is used to heat water for buildings, swimming pools, and for various industries;
4. **Passive solar:** which generally refers to the use of glazing, building design and building orientation to contribute to space heating?

The impacts of solar energy are multifaceted and will vary on a case by case basis. Within the MSB project we focus on Photovoltaic (PV) and Concentrated Solar Power (CSP), as the other two are unlikely to have an impact on a significant scale, and it is these two technologies which are believed to expand within the region.

As there are a limited number of large-scale solar plants in operation worldwide, and as a result, there are a limited number of studies on their impact. Currently in the region of the project, while developments are planned none are in operation. However, the impacts of large-scale solar farms are likely to be associated with:

- **Water use:** Water can be used for cleaning purposes which can be significant. For Concentrated Solar Panels technologies water may be used in the cooling processes or to generate steam to drive a turbine. The potential extraction rate can be very high and may have a significant impact on local and regional hydrology and associated avifauna, especially in water-constrained areas;
- **Habitat loss/fragmentation:** potentially this is the largest impact, as large areas of habitat may be removed, replaced or degraded. The actual ecological significance of the impact will be site and scale specific; many developments are likely to have limited impacts. An assessment of the

ecological value of the development's footprint will show the significance of the impact, the assessment of cumulative impacts is also vital;

- **Risk of collision:** with associated infrastructure including fencing and towers but particularly associated power lines. Some species of birds may collide with panels due to their attraction to shaded areas, particularly if they are located in previously undisturbed areas;
- **Pollution:** activities during the construction period and the on-going maintenance, as well as chemicals which may be used in CSP energy generation, could lead to the release of pollutants into the environment. Contaminated liquids in hyper-arid regions could be detrimental to large numbers of migrants.

A number of other scenarios have been put forward as potentially having an adverse impact and they require further study:

- **Disturbance:** Change in a bird's natural behaviour may lead to disorientation and increase energy use. Large arrays of panels may resemble water bodies attracting some bird species. One study indicated that insects were attracted to laying eggs on panels as they confused them with water, while the shading provided by panels can also attract birds. Disturbance during construction and maintenance may also be an issue. Other possible issues related to increasing access to otherwise inaccessible areas;
- **Change of habitat function:** the increase in shading and changing water regime within a solar power plant changes the micro-climate and may change vegetation patterns. This means the potential indirect impact on breeding and resting birds by changing food sources (e.g. seeds, insects, plants and animals) and also nesting structures;
- **Barrier effect:** If very large areas are being used and the cumulative impact have not been assessed which can indicate if there is a region or flyway scale impact on migratory soaring bird population, or if solar arrays occupying habitat at known resting sites forcing the abandonment of an area, linkages within the landscape could be disrupted;
- **Potential heat damage:** a theoretical risk from heliostat technology, which concentrates solar energy on a central collector generate temperatures in excess of 1000° C, is that birds flying within its beam may be injured or killed, one study at the now decommissioned Solar One facility in California indicated that while some birds were affected overall the outcome was not significant

The guidance documents which the MSB project has produced relate to Photovoltaic and CSP and are designed to be used by each stakeholder group but can also be used by organisations when approaching the different stakeholder groups for lobbying purposes, for instance a local community can refer to both to the civil society guidance, while also approaching a developer with the developer guidance.

The sensitivity mapping tool can also be found and utilised. It provides a valuable resource and tool which can aid in identifying areas where there is a high risk of vulnerability for birds and important bird areas across the region.



Government

Governments play an important role in setting the standards and legislative environment in which development of solar farm arrays and the technology used is delivered. By providing the appropriate legislative and regulatory environment governments can ensure birds and biodiversity impacts are reduced. The MSB project has provided a set of guidance tailored towards governments in the region which will inform governments of actions which should be carried out to reduce the adverse impacts on birds and biodiversity.

- [Guidance document for governments](#)
- Case studies
- External Resources
 - Birdlife Europe's '[Living in Harmony with Nature](#)'
 - [CBD guidelines on EIA](#)
 - [CBD guidelines on SEA](#)
 - [Agreement on the Conservation of African-Eurasian Migratory Waterbirds \(AEWA\)](#) Resolution 5.16 [Renewable Energy and Migratory Waterbird's](#)
 - Resolution XI.10 of the [Ramsar Convention](#), on 'Wetlands and Energy Issues'



The Funnel Effect = Mass Insect Mortality at Solar Farms = Migratory Bird Deaths

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Have you heard about the funnel effect? It appears solar plants can draw in millions of insects and fry them. And then migratory birds drop in to eat the insects and the birds then get fried too.

“USFWS also noted an issue Rewire hasn’t covered before, and we suspect it has something to do with that funnel effect: the mortality of insects. The agency says the Palen solar project may have a serious effect on insects, based on experience at BrightSource’s Ivanpah Solar Electric Generating System (ISEGS) site, now nearing completion in San Bernardino County. “Staff with the CEC reported large mortalities of insects killed during flux testing at the ISEGS site,” says USFWS. “[A]mong those documented include **migratory monarch butterflies and dragonflies.**”

A subsequent passage in the note on insects is an important summary of the relevance of insect mortalities to risk to other wildlife:

The ecological effects of mass insect mortalities have not been investigated and may lead to greater levels of mortality than have been anticipated. In particular, concentrations of insects are likely to draw insectivorous and omnivorous migratory birds, including many raptors, which may increase the risk of bird mortalities.

If you have a facility that both attracts an entire food chain and then poses a risk of mortality or injury to individual animals at any level in that chain, then you’ve created an ecosystem-wide population sink that can metaphorically “funnel” individual animals from a wide stretch of habitat to a single spot where they meet their demise.

<http://www.kcet.org/news/rewire/commentary/usfws-mysterious-funnel-effect-harming-wildlife-at-unnamed-solar-plant.html>

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