



Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N., Carbone, G. (2021). *Mitigating biodiversity impacts associated with solar and wind energy development. Guidelines for project developers*. Gland, Switzerland: IUCN and Cambridge, UK: The Biodiversity Consultancy.

# Mitigation measures to reduce impact of solar power projects here

The mitigation hierarchy provides developers with a logical framework to address the negative impacts of development on biodiversity and ecosystem services. It is applicable to projects in any sector, including renewable energy, and is based on the sequential and iterative application of four actions: avoid, minimise, restore and offset. There are several existing mitigation measures that can be applied

across all the phases of a solar power project. The IUCN ***Mitigating biodiversity impacts associated with solar and wind energy development Guidelines for project developers*** details recommendations for addressing the impacts of solar power projects on nature across four phases: project design, constructions, operational, and end-of-life.

**Table 4-3** Summary of mitigation approaches for solar power projects

Project phase	Mitigation hierarchy	Approach
Project design phase	Avoidance and minimisation	Micro-siting: changing the layout of project infrastructure to avoid sensitive areas  Re-routing, marking or burying powerlines to avoid collision risks and barrier effects
	Avoidance	Scheduling: changing the timing of construction activities to avoid disturbing biodiversity during sensitive periods
Construction phase	Minimisation	Abatement controls to reduce emissions and pollutants (noise, erosion, waste) created during construction  Operational controls to manage and regulate contractor activity, such as exclusion of fencing around sensitive areas, designated machinery and lay-down areas, minimising vegetation loss and disturbance to soil
	Restoration and rehabilitation	Repair of degradation or damage to biodiversity features and ecosystem services from project-related impacts that cannot be completely avoided and/or minimised by revegetating of temporary-use and lay down areas as soon as reasonably practicable after construction activities are complete
	Minimisation	Physical controls involving modification to infrastructure, or its operation, to reduce impacts (e.g. modifications to solar technology and their associated foundations, implementing dry or hybrid cooling systems rather than wet cooling systems, and modifying security perimeter fencing and overhead transmission lines)  Abatement controls including wastewater management and water conservation measures at CSP facilities)  Operational controls to manage and regulate contractor activity such as managing the timing of vegetation control activities at suitable intervals)
Operational phase	Avoidance	Scheduling: changing the timing of decommissioning activities to avoid disturbing biodiversity during sensitive periods (e.g. during breeding seasons)
	Minimisation	Abatement controls to reduce emissions and pollutants (noise, erosion, waste) during decommissioning and repowering  Operational controls to manage and regulate contractor activity through, for example, exclusion fencing around sensitive areas, designated machinery and lay-down areas)
	Restoration and rehabilitation	Repair of degradation or damage to biodiversity features and ecosystem services from project-related impacts that cannot be completely avoided and/or minimised by revegetating temporary-use and lay down areas as soon as reasonably practicable after construction activities are complete  Reinstatement of original vegetation, as far as feasible, following decommissioning
End-of-life	Avoidance	Scheduling: changing the timing of decommissioning activities to avoid disturbing biodiversity during sensitive periods (e.g. during breeding seasons)
End-of-life	Minimisation	Abatement controls to reduce emissions and pollutants (noise, erosion, waste) during decommissioning and repowering  Operational controls to manage and regulate contractor activity through, for example, exclusion fencing around sensitive areas, designated machinery and lay-down areas)
	Restoration and rehabilitation	Repair of degradation or damage to biodiversity features and ecosystem services from project-related impacts that cannot be completely avoided and/or minimised by revegetating temporary-use and lay down areas as soon as reasonably practicable after construction activities are complete  Reinstatement of original vegetation, as far as feasible, following decommissioning