

Development phase	SOLAR PV AND HOT WATER IN THE LANDSCAPE			
	Potential type of DIRECT impact		Potential type of INDIRECT impact	
	Negative	Positive	Negative	Positive
CONCEPT	<ul style="list-style-type: none"> - Clearing of natural habitats in preparation for the project 	<ul style="list-style-type: none"> - Opportunity to implement advanced offset or enhancement actions 	<ul style="list-style-type: none"> - Supply chain and manufacturing impacts - In-migration in expectation of project development 	<ul style="list-style-type: none"> - Potential for promoting integrated landscape planning
PLANNING	<ul style="list-style-type: none"> - Direct tangible impacts due to surveying (e.g., removal of plants or extant built structures) - Land acquisition can lead to the relocation of people and their homes - Land acquisition can displace the livelihoods of affected communities (cultivation, fishing, herding, etc.) 		<ul style="list-style-type: none"> - Disassociation of individuals or communities from the landscape in expectation of project development - Lack of or reduction in maintenance practices in expectation of project development - Controlled or uncontrolled removal of significant cultural attributes or species in expectation of project development 	<ul style="list-style-type: none"> - Community engagement with planning processes can lead to a better understanding of significance and associations - The study of cultural and natural contexts can deliver new knowledge, such as through archaeological investigations, oral history projects, inventories of species and populations, geology, etc. - Identification and removal of invasive species

CONSTRUCTION	<ul style="list-style-type: none"> - Vulnerable groups (e.g., the poor, women, Indigenous communities, children, etc.) may be at risk - Migrant construction workers can bring inappropriate cultural behaviour - Gender-based violence due to the arrival of predominantly male construction workers - Loss or degradation of natural habitats - Barriers to wildlife movement - Disturbance of or injury to wildlife from construction traffic, noise, activities or night lighting - Soil quality may be reduced - Pollution by dust, construction materials or vehicle emissions - Introduction of alien invasive species - Terrain altered through clearance and levelling works - Soil compaction, alternation of drainage and increased erosion - Habitat loss or fragmentation from the construction of access roads - Damage to or loss of cultural or archaeological sites - Perimeter fencing around the worksite can fragment habitats 	<ul style="list-style-type: none"> - Opportunities for vulnerable groups to acquire new skills - Construction may bring job opportunities for local communities - Solar panels can contribute to limiting soil erosion 	<ul style="list-style-type: none"> - Supply chain and manufacturing impacts - Increased local resource use, wildlife disturbance or pollution from temporary construction workforce - Induced access via new or upgraded roads - Displacement of agricultural or other activities 	<ul style="list-style-type: none"> - Increased economic opportunities for local communities
OPERATION	<ul style="list-style-type: none"> - Land-use change due to large areas required for developments, 	<ul style="list-style-type: none"> - Agri-PV can potentially increase land-use 	<ul style="list-style-type: none"> - Increased access to remote areas may increase 	<ul style="list-style-type: none"> - Improvements to infrastructure (e.g.,

	<p>including the potential displacement of livelihoods</p> <ul style="list-style-type: none"> - Limited access to cultural or heritage sites - Increased pressure on local communities' public services - Behavioural displacement (species-specific) and barriers to wildlife movement - Increased water demand for the cleaning of PV panels - Run-off pollution from cleaning chemicals - Wildlife attraction to reflective surfaces - Habitats below solar panels may be altered by shade - Solar farm perimeter fencing can fragment habitats - Damaged storage batteries can discharge hazardous substances - Obstructed views and visual intrusions - Glint and glare can be problematic for local communities, visitors, etc., and for services (air transport) 	<p>productivity by combining energy generation with agricultural production</p> <ul style="list-style-type: none"> - Some solar PV companies provide benefit-sharing opportunities with local communities - Onsite biodiversity enhancement - Onsite protection of natural habitats or species - Agri-PV can reduce water usage as a result of panel shading - Panel shading at agri-PV sites can protect plants/animals from the impacts of intense weather and improve soil moisture retention - Panel shading at floating PV sites can improve water quality and create 	<p>the risk of hunting/poaching</p> <ul style="list-style-type: none"> - Increased access to remote areas may favour the introduction of invasive alien species 	<p>roads, bridges, etc.) for the operation of the site may also service local communities</p> <ul style="list-style-type: none"> - Reduced carbon footprint - Contribution to addressing the global climate emergency
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		favourable microhabitats for wildlife		
REPOWERING	<ul style="list-style-type: none"> - Ecological/environmental disturbance during infrastructure removal 	<ul style="list-style-type: none"> - Opportunity to improve layout and design, and implement biodiversity enhancement 	<ul style="list-style-type: none"> - Supply chain and manufacturing impacts - End-of-life solar panels require recycling or disposal - Creation of toxic waste 	<ul style="list-style-type: none"> - Reuse of materials in replaced infrastructure - More efficient production of low-carbon electricity or heat
DECOMMISSIONING	<ul style="list-style-type: none"> - Ecological/environmental disturbance during infrastructure removal 	<ul style="list-style-type: none"> - Opportunity for natural habitat restoration 	<ul style="list-style-type: none"> - End-of-life solar panels require recycling or disposal - Creation of toxic waste 	<ul style="list-style-type: none"> - Reuse of materials in removed infrastructure
RECOVERY	<ul style="list-style-type: none"> - Land restoration can affect topography, water drainage, habitats, etc. 			

(Please note that these lists are intended only to provide examples and are by no means exhaustive. For the question of assessing visual impacts, see [‘Note 4’](#))