



## **Councillor Workshop**

**Tuesday 8 August 2023**

**4.00pm**

**Council Chambers**

**209 Comur Street, Yass**

**Councillor Workshop**  
**A G E N D A**

**Page No.**

**Acknowledgement of Country**

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### 3.1 RENEWABLE ENERGY POLICY

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#### SUMMARY

In June 2023 Councillors discussed the need for a workshop on the *Renewable Energy Policy*.

#### SUGGESTED OPTIONS

*That consideration be given to a minor amendment to the Renewable Energy Policy.*

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#### FINANCIAL IMPLICATIONS

Nil

#### POLICY & LEGISLATION

- Renewable Energy Policy

#### REPORT

In June 2023 Council considered an application for the Wallaroo Solar Farm. At this meeting Councillors sought a workshop on the Renewable Energy Policy to determine if it needs to be further reviewed.

In June 2018 Council held a Planning Forum on windfarms with speakers for and against the land use. From the Forum and a subsequent Councillor Workshop a policy position was developed on renewable energy projects in Yass Valley which was adopted in October 2018 (refer **Attachment A**).

In October 2019 there was an administrative update to the policy was endorsed but this made no fundamental changes.

While the policy had its origins in the windfarm debate it was structured to be applicable to all renewable energy projects.

The policy position indicates that while supportive of renewable energy projects, further large scale wind turbine sites are opposed.

The policy also indicates that despite its position on windfarms it would consider further proposed renewable energy projects on their individual merits with the following matters being taken into consideration:

- The location being consistent with the *Yass Valley Settlement Strategy*
- The infrastructure (e.g. turbines, panels, substations) not being within view lines of villages and towns or areas of closer settlement
- The infrastructure not having an adverse impact on the amenity of other dwellings
- The impact of infrastructure (e.g. turbines, panels) on the rural landscape and tourism values of the Yass Valley
- Roads being used by any heavy vehicles being upgraded to the appropriate standard in Council's *Roads Standards Policy* prior to commencement of works on site
- A sharing the benefits scheme(s) with the host landowners, immediate neighbours and a Community Enhancement Fund (as per Council policy)
- Noise impacts at adjoining dwellings being consistent with the applicable standards
- The project to commence within 5 years of a Consent being issued and completed within 5 years of commencement
- The impacts of the infrastructure (e.g. panels, turbines) on the heritage values of the site and Yass Valley
- The economic and social impacts on local communities and Yass Valley

- Any community and Rural Fire Service concerns in relation to the bushfire risks and any impediments to firefighting operations

The policy relates to all renewable energy projects including windfarms and solar farms. The only adjustment necessary is the addition of a reference to the Department of Planning & Environment (DPE) *Large Scale Solar Energy Guidelines 2022*.

Copies of the DPE guidelines on wind and solar energy are included in **Attachments B** and **C**.

**ATTACHMENTS:**

- A. Renewable Energy Policy [↓](#)
- B. DPE Wind Energy Guidelines 2016 [↓](#)
- C. DPE Large Scale Solar Energy Guidelines 2022 [↓](#)



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<b>Policy:</b>	<b>RENEWABLE ENERGY</b>	<b>SP-POL-7</b>
<b>Division:</b>	<b>Planning</b>	
<b>Responsible Officer:</b>	<b>Director Planning</b>	

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**1. INTRODUCTION**

For several years Council has wrestled with the impacts of large scale electricity generating works on the rural landscape and communities throughout Yass Valley.

On 13 June 2018 Council held a Planning Forum on windfarms with speakers for and against the land use.

On 18 June 2018 a Councillor Workshop was held regarding Council's approach to wind farms and other renewable energy projects.

From the Planning Forum and Workshop, Council has developed its policy position on renewable energy projects.

**2. POLICY OBJECTIVE**

To outline Council's position in relation to renewable energy projects proposed in Yass Valley.

To act as a guide on the likely impacts and concerns of the local community that Council expects to be addressed in any planning documentation.

**3. POLICY SCOPE**

This policy applies to all renewable energy projects proposed in Yass Valley.

**4. POLICY PROVISIONS**

The following policy statement has been determined by Council:

*Having considered the social, environmental, economic and strategic planning impacts on the Yass Valley communities and the cumulative impacts of the four approved wind farm sites Council is of the view that it has reached the maximum number of industrial turbines for the local government area.*

*While supportive of renewable energy in general, Council opposes in principle, further large scale wind turbine sites in Yass Valley.*

*Despite Council's position on wind farms it will consider any further proposed renewable energy projects submitted for assessment on its individual merits with the following matters (in addition to the Department of Planning & Environment's Wind Energy Guide or the like) to be taken into account:*

- a) *The location being consistent with the Yass Valley Settlement Strategy*
- b) *The infrastructure (e.g. turbines, panels, substations) not being within view lines of villages and towns or areas of closer settlement*
- c) *The infrastructure not having an adverse impact on the amenity of other dwellings*
- d) *The impact of infrastructure (e.g. turbines, panels) on the rural landscape and tourism values of the Yass Valley*
- e) *Roads being used by any heavy vehicles being upgraded to the appropriate standard in Council's Roads Standards Policy prior to commencement of works on site*
- f) *A sharing the benefits scheme(s) with the host landowners, immediate neighbours and a Community Enhancement Fund (as per Council policy)*
  - i. *Noise impacts at adjoining dwellings being consistent with the applicable standards*

- ii. *The project to commence within 5 years of a Consent being issued and completed within 5 years of commencement*
- iii. *The impacts of the infrastructure (e.g. panels, turbines) on the heritage values of the site and Yass Valley*
- iv. *The economic and social impacts on local communities and Yass Valley*
- v. *Any community and Rural Fire Service concerns in relation to the bushfire risks and any impediments to firefighting operations*

## 5. REVIEW

This policy will be reviewed once each term of Council or as needed in response to any change of circumstance including changes in legislation.

## 6. LEGISLATIVE & LEGAL FRAMEWORK

This policy is to be read in conjunction with the following:

- *Local Government Act 1993*
- *Environmental Planning & Assessment Act 1979*

Council employees shall refrain from personal activities that would conflict with proper execution and management of Council's Renewable Energy Policy. Council's Code of Conduct provides guidance for recognising and disclosing any conflicts of interest.

## 7. DEFINITIONS

Under the Yass Valley Local Environmental Plan 2013:

**electricity generating works** means a building or place used for the purpose of making or generating electricity

## 8. RESPONSIBILITIES

The following Council Officers are responsible for the implementation and adherence to this policy:

- Director Planning
- Manager Development Control
- Manager Strategic Planning
- Planning Staff

Development assessment staff are required to take into account the provisions of this policy in relation to any Development Applications.

## 9. HISTORY

<i>EMT Review Date</i>	<i>Report to Council</i>	<i>Minute No.</i>	<i>Exhibition Period</i>	<i>Adoption</i>	<i>Rescission Date</i>
9/2018	24/10/2018	290	11/2018	19/12/2018	
11/09/2019	23/10/2019	245	N/A	23/10/2019	

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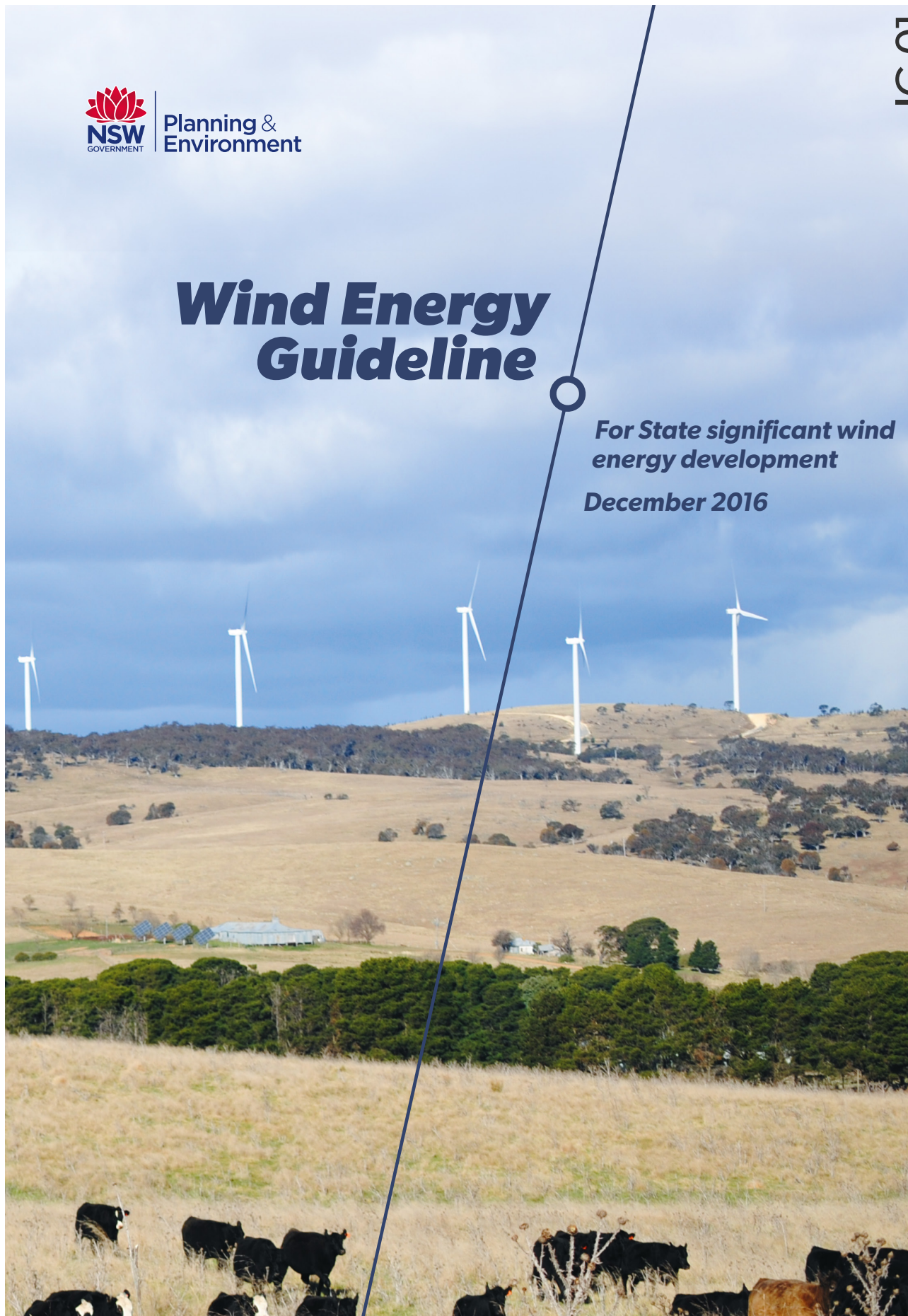


Planning &  
Environment

# **Wind Energy Guideline**

***For State significant wind  
energy development***

***December 2016***



December 2016

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## 1. Introduction

### 1.1 Purpose of the Wind Energy Guideline

The *Wind Energy Guideline* (the Guideline) provides the community, industry and regulators with guidance on the planning framework for the assessment of large-scale wind energy development proposals that are State significant development (SSD).

This Guideline identifies the key planning considerations relevant to wind energy development in NSW. It will assist stakeholders in the design and siting of SSD wind energy projects. It will also guide the assessment and evaluation, determination of wind energy development proposals, and, where approved, their construction and operation. The Guideline is not intended to be a comprehensive 'how to' manual for wind energy development, nor will all issues be relevant for every proposal. However, the NSW Government's intention is that this Guideline becomes the key reference document for decision-making on SSD wind energy development in NSW.

This Guideline delivers on the Government's commitment in the *NSW Renewable Energy Action Plan* (2013) to implement wind energy planning guidelines in NSW.

While the assessment process for SSD wind energy projects is generally the same as it is for other types of SSD projects, there are certain aspects that are unique for wind energy development and warrant special consideration. The Guideline provides the overarching planning framework for assessing SSD wind energy projects and is supported by additional Assessment Bulletins which the Department of Planning and Environment (the Department) issues periodically to provide technical guidance on key issues, such as noise and visual assessment.

Consultation with communities, proponents and other stakeholders is an integral part of the assessment process for SSD wind energy projects. This Guideline also provides guidance to the community, proponents and consent authorities in understanding the level of engagement expected from proponents of SSD wind energy projects.

### 1.2 Objectives

The objectives of this Guideline are to:

- provide clear and consistent guidance to the community, industry and regulators about how to measure and assess key environmental impacts of SSD wind energy development in NSW;
- facilitate better outcomes by requiring early identification of impacts to drive better siting and design;
- facilitate meaningful, respectful and effective community and stakeholder engagement across the development assessment process, from pre-lodgement to post-approval;
- encourage benefit-sharing between wind energy operators and the communities in which they operate, where appropriate; and
- provide greater accountability for the management of impacts over the life of a project by linking commitments to conditions and / or appropriate monitoring and adaptive management strategies.





### 1.3 Strategic context

The NSW Government supports the development of a sustainable wind energy industry in NSW. This State has valuable wind resources by international standards with many of the best areas located near existing electricity transmission infrastructure. Wind energy projects harness the state's abundant natural resources to generate clean energy, while at the same time supporting jobs and investment, particularly in regional areas.

In addition, the NSW Government is committed to supporting the Commonwealth Government achieve the national Renewable Energy Target which has been a key driver of wind energy development in NSW. The NSW Government through its climate change policy has an aspirational long term objective of achieving net zero emissions by 2050. It recognises the importance of reducing greenhouse gas emissions in energy generation, and the opportunities which the renewable energy industry offers for the State.

There is a significant opportunity for NSW to invest in wind energy, as one of the most commercially ready and cost-effective renewable energy technologies currently available for use on a large scale. This opportunity needs to be managed to ensure that the potential impacts of wind energy projects are accurately identified and any adverse outcomes are minimised.

This Guideline is part of a framework that will ensure that impacts are transparently identified and assessed so that informed decisions are made with the benefit of community input.

This wind energy framework will address delays in the assessment process and help NSW capture benefits from the wind industry. Importantly, the framework will ensure the balance between attracting investment and the interests of the community.

It will also assist stakeholders through the consistent implementation of best practice assessment techniques to ensure wind energy projects are appropriately designed and sited. This is in recognition that the introduction of a wind energy project into the landscape requires careful consideration and this includes the potential impacts of the wind energy project on surrounding communities. A single landscape may have multiple and overlapping environmental values such as heritage, biodiversity and visual amenity.

This Guideline supports the Department in undertaking a risk based approach to the assessment of impacts from wind energy projects, noting that there is a rigorous framework, including stringent noise criteria and a landscape visual assessment methodology, to ensure there is sufficient protection for the community. The Guideline also supports the consent authority in making a decision that balances the broad range of social, environmental and economic considerations applying to each project. The decision-maker is also required to consider the public interest and, in the Taralga<sup>1</sup> case for example, the Land and Environment Court was satisfied that the overall public benefits outweighed any private dis-benefits to the community or specific landowners in that case, referring to the significant public interest in general terms in the adoption of alternative, more environmentally friendly, energy generation sources.

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<sup>1</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd (2007) 161 LGERA 1.*

#### 1.4 Application of the Guideline

A wind energy project or wind farm means any turbine, building, or other structure used in or in connection with the generation of electricity by wind force.

This Guideline applies to all applications for development consent for on-shore SSD wind energy development where the Secretary's Environmental Assessment Requirements (SEARs) were issued after the date of publication of this Guideline. The Guideline also applies to applications for modification to an existing wind farm approval submitted after the date of publication of this Guideline.

This Guideline replaces any previous draft planning guidelines for wind farms and will be reviewed from time to time as required.

## 2. Planning framework

The *Environmental Planning and Assessment Act 1979* (the EP&A Act) establishes several planning assessment and approval pathways for different kinds of development, including SSD wind energy development, which are outlined in more detail in Attachment A.

#### 2.1 Permissibility

Permissibility of wind energy development is determined by the relevant environmental planning instruments, including State Environmental Planning Policies (SEPPs) and local environmental plans (LEPs). The EP&A Act and the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg), along with these planning instruments, also establish the assessment and approval pathways and other development controls. Key reference points include:

- the zoning and land use provisions of the relevant LEP;
- Part 3 Division 4 of *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP); and
- Part 4, and Schedule 1 clause 20, of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP).

Where wind energy development is permitted with consent, the proponent can lawfully lodge a development application (DA) for determination by the relevant consent authority (for more details, see Attachment A). If the proponent is not the owner of the land to which the DA relates (or is not the only owner), the proponent must provide evidence that all the relevant landowners consent to the application. It should be noted that the consent of a landowner to lodge an application is for assessment purposes only and does not bind the landowner to the eventual outcome. In the case that the land is owned by the Crown, landowners consent and lease arrangements must be obtained from the Department of Primary Industries (Crown Lands).





Not all aspects of a wind energy proposal will need development consent. For example, in circumstances where a wind monitoring tower is used to investigate the feasibility of wind energy, the tower may be installed as 'exempt development' under clause 39(2) of the Infrastructure SEPP without planning approval, if it complies with specified requirements. Electricity transmission and distribution lines might also be assessed separately (see section 2.3.1).

## 2.2 Planning pathways

Once permissibility has been established, a proponent needs to determine the appropriate assessment pathway for its wind energy project. The development assessment process varies according to factors such as the 'capital investment value' (which is defined in the EP&A Reg) and electrical power output of the project (see Attachment A).

The majority of wind energy development in NSW will be SSD, which requires approval from the Minister for Planning under the EP&A Act. In practice, the independent Planning Assessment Commission determines applications under its delegation where:

- there have been 25 or more objections to the application; or
- the local council has objected; or
- there has been a disclosure of a reportable political donation or gift, made in connection with the application or a previous related application.

This is consistent with the process for other SSD projects. Under limited circumstances, senior officers of the Department may have the delegated authority to determine an application.

## 2.3 Other approvals

### 2.3.1 Transmission lines

A large-scale electricity generating project needs to connect to the electricity transmission or distribution grid to enable the distribution of the generated electricity. The transmission and distribution lines connecting a wind energy generating facility to the grid can be considered as a separate development from the generating facility given both the linear nature of transmission lines and the fact that they are usually owned and operated by an electricity transmission operator or distributor under the *Electricity Supply Act 1995*, or an 'authorised network operator' under the *Electricity Network Assets (Authorised Transactions) Act 2015*, rather than the wind energy generation operator.

The approval pathway for transmission and distribution lines under the EP&A Act is often different from the pathway for the wind energy project. The Infrastructure SEPP provides for a different environmental assessment and planning pathway for this kind of development under Part 5 of the EP&A Act. Nonetheless, the assessment of a proposed wind energy project itself may need to consider, to some extent, the environmental impacts of transmission lines or distribution lines assessed under Part 5 of the EP&A Act.

In these instances, a proponent should provide the Department with information in its Environmental Impact Statement (EIS) about the delivery of transmission lines, such as timing of decision-making and stakeholder roles, in order to give more certainty to the consideration of all aspects of the project and to assist in matching the timeline for assessment, approval and construction of the wind energy project with the timeline for assessment and construction of the transmission lines.

However, if the transmission and distribution lines are not being developed by or on behalf of an electricity supply authority, public authority or authorised network operator, and are sufficiently related to the wind energy generating facility, they should form part of the associated SSD wind energy project and are governed by Part 4 of the EP&A Act, and subsequently, this Guideline.

Proponents should consult with the relevant Network Operator and the Department early in the project planning process to clarify responsibilities and the applicable planning pathways for transmission and distribution infrastructure, and to discuss connection to the relevant electricity grid, if required.

#### 2.3.2 Other legislation

An environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997* (POEO Act) is required for wind energy projects which are SSD or designated development.

An EPL is issued by the Environment Protection Authority (EPA). The EPA provides advice to the Department when wind energy projects are being assessed. The requirements of an EPL regulate the construction and operation of a wind energy projects for issues which the POEO Act covers, including noise pollution. The requirements of an EPL must be consistent with the development consent for the project.

Some wind energy projects also have the potential to impact on 'matters of national environmental significance' under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and may require a separate approval under that legislation.

The Commonwealth and NSW Governments have signed a Bilateral Agreement under the EPBC Act relating to environmental assessment. The Bilateral Agreement accredits NSW to conduct a single environmental assessment process for SSD proposals that impact on certain matters of national environmental significance under the EPBC Act, by removing the need for separate assessment by the Commonwealth. However, the final decision on whether to approve the impacts on matters of national environmental significance is still made by the Commonwealth.

Proponents are encouraged to make a referral to the Commonwealth Department of the Environment and Energy early in the assessment process to understand if Commonwealth approval is required and to be assessed under the Bilateral Agreement.

### 3. Assessment issues for wind energy development

SSD wind energy projects will generally be assessed like any other SSD project.

There are, however, certain assessment issues that are unique or particularly relevant to wind energy development. The issues which are specifically relevant for wind energy development and will be considered in the environmental assessment of an application, include:

- **strategic context:** the consent authority will give consideration as to whether the project is consistent with the objectives of the NSW Government's climate change policy and how the project contributes to the Renewable Energy Target;
- **biodiversity:** including the extent to which impacts of the wind energy project on biodiversity values have been avoided, minimised or offset to an acceptable level, in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* having regard to the advice of the NSW Office of Environment & Heritage for terrestrial biodiversity or the Department of Primary Industries (Fisheries) for aquatic biodiversity. A key biodiversity issue for wind energy development is bird and bat strike and whether suitable measures are proposed to manage potential bird and bat strike fatalities resulting from either direct collision or through barotrauma (rapid changes in air pressures associated with the movement of the blades);
- **visual impacts:** the height, scale and mechanical character of wind turbines creates an unavoidable level of visibility and contrast with the natural environments in which they are situated. This can alter the character of the landscape and people's enjoyment of the landscape. Multiple wind energy projects in close proximity may create cumulative impacts on a particular landscape. Assessment of these impacts is a complex endeavour. In recognition of these challenges the Department has prepared an Assessment Bulletin which is designed to bring greater transparency, consistency and objectivity in visual impact assessments for wind energy development.

The consent authority will give consideration to the acceptability of impacts on landscape values and the amenity of landholders and communities, and the adequacy of the measures which are proposed to avoid, reduce or otherwise manage these impacts, having regard to the Visual Assessment Bulletin;

- **noise impacts:** the rotation of wind turbines generates both aerodynamic and mechanical noise. When assessing the potential annoyance from a noise source, both the level and character of the noise need to be taken into consideration. To ensure an adequate assessment of potential noise impacts, the Department has developed a Noise Assessment Bulletin. This Bulletin identifies the noise assessment requirements for SSD wind farm projects and includes a noise limit of 35 dB(A) or the prevailing background noise plus 5 dB(A), whichever is the greater for each operational wind speed.

The consent authority will give consideration to whether the predicted noise levels comply with the noise criteria, having regard to the advice of the EPA and the adequacy of measures which are proposed to avoid, reduce or otherwise manage these impacts.

With regards to concerns over the potential health impacts of wind energy, the NSW Government's position is informed by the scientific findings of the National Health and Medical Research Council (NHMRC) and the advice of NSW Health. The NSW Government will continue to monitor contemporary scientific research outcomes to ensure its position reflects robust evidence on any health effects, including any advice released from the National Wind Farm Commissioner and the Independent Scientific Committee on Wind Turbines;

- **traffic and transport:** the consent authority will give consideration to the extent to which the local and classified road network can accommodate the type and volume of traffic generated by the wind energy project, including the adequacy of any proposed road upgrades and maintenance commitments, having regard to the advice of relevant road authorities;
- **hazards and risks:** whether hazards or risks associated with the wind energy project can be suitably managed, having regard to the advice of relevant government authorities, with particular hazards and risk including:
  - **aviation safety:** wind energy projects need to consider potential safety hazards for aircraft through intrusion of the wind turbines into the airspace; and potential effects on navigation instruments;
  - **bushfire hazard:** consider potential hazards and risks associated with bushfires and the adequacy of measures to manage this risk;
  - **health:** consider any health issues having regard to the latest advice of the NHMRC and consider potential hazards and risks associated with electric and magnetic fields and demonstrate the application of the principles of prudent avoidance;
  - **telecommunications:** the consent authority will give consideration to the risk of electromagnetic interference with telecommunication services in the area, and the adequacy of the measures proposed to ensure the level of service is maintained;
  - **blade throw:** consider blade throw risks;
- **decommissioning:** consideration will be given as to whether suitable arrangements for decommissioning and rehabilitation of the site are in place; and
- **cumulative impacts:** the consent authority will give consideration as to whether any other proposed, approved or operating wind energy projects in the vicinity are likely to increase the impacts of the wind energy project the subject of the DA, especially in regard to landscape, noise, biodiversity and traffic impacts.

Other issues, such as economic and social impacts, historic and Aboriginal cultural heritage, and water will continue to be dealt with through existing policies and practices which apply to all SSD proposals.

The Department has developed standard requirements (known as SEARs) which contain guidance on assessing the relevant potential impacts of wind energy projects. The standard SEARs may be supplemented by project-specific SEARs to incorporate additional assessment requirements, if required.

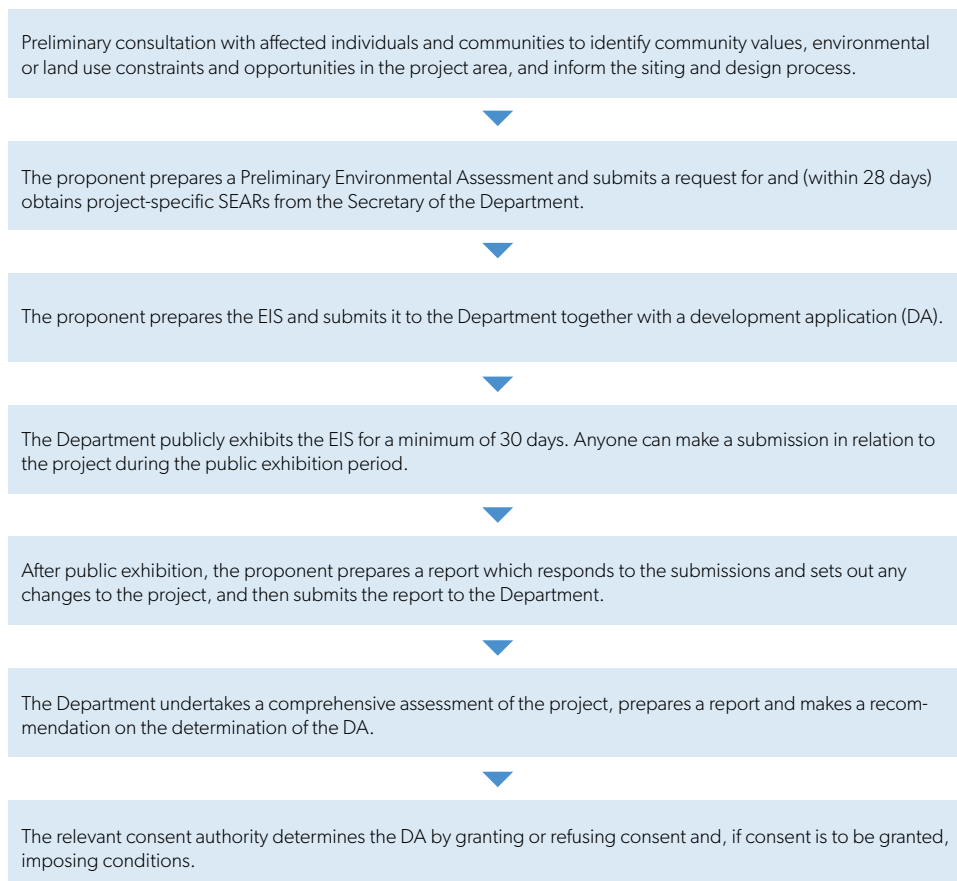
## 4. The assessment process

The flow chart in Figure 1 outlines the statutory assessment and approval process for SSD proposals. During the scoping, environmental assessment and determination process, key issues will need to be addressed in consultation with the community and other stakeholders. The SEARs for a wind energy project will provide detail on the assessment requirements for the proposal consistent with this Guideline.

The typical SSD assessment process is set out in Figure 1.

It is important to note that this is an iterative process, and the proponent may need to revisit aspects of a proposal, including the siting of turbines, as the understanding of relevant environmental issues (such as interaction with the landscape values and community concerns) are better understood. This may include amending projects in response to issues identified through community consultation.

**Figure 1. Summary of the typical assessment and approval process for SSD**



The Department's Planning Circular *PS 11-014 Assessment of State significant development and infrastructure (2011)* contains additional information on SSD processes.

#### 4.1 Scoping and pre-lodgement

The people and groups affected by a proposed wind energy project will depend on the project context, including the different linkages and networks that connect people and groups. Respectful, inclusive and meaningful engagement with potentially affected people, groups, and other interested parties forms a critical part of all phases of the impact assessment process. It should be undertaken to make the public aware of the proposal, provide opportunities for early input and establish relationships.

It should be noted that early consultation with the community should not be limited to one aspect of a project. Consultation with a range of potentially affected stakeholders could be undertaken to identify the constraints and opportunities of the project area. Consultation could involve engagement on the values the wider community place on those attributes, in order to inform project siting and design. For example, consultation could be undertaken with local councils, heritage groups, farming groups, environmental groups and business chambers. This may include inviting stakeholders to rank or value attributes such as access to the site, surrounding land uses, landscape values, geology, hydrology, soils, biodiversity, and wind resource location. There are a range of methodologies for how this could be undertaken<sup>2</sup>. Such consultation should occur before the project siting and design is finalised so that it informs the siting and design process.

Setting a broad design framework and seeking the views of affected landowners at the scoping stage will result in a more responsive wind energy development, and can minimise or avoid issues arising during the assessment process.

Proponents must go through this iterative design process in order to identify the most appropriate locations for the final siting of specific turbines in a project, based on the quality of the wind resource and the results of their consultation. Proponents are required to articulate and describe this process and relevant learnings in the EIS.

Scoping these details upfront also enables the Department to prepare SEARs that are appropriately targeted but also provide sufficient flexibility to vary and refine the proposal through the assessment process.

#### 4.2 SEARs and Preliminary Environmental Assessment

SEARs will specify the matters to be addressed by proponents in the EIS for the project.

A request for SEARs should be accompanied by a Preliminary Environmental Assessment (PEA) that:

- describes the proposed wind energy project and its location in context (for example, it should identify the preliminary turbine layout, nearby dwellings, key public viewpoints and other key landscape features) - proponents should demonstrate the suitability of their chosen location and the viability of wind resources in that area;
- describes:
  - steps taken to assist potentially affected people and groups in understanding the proposed development and what it could mean for them; and
  - the proposed overall approach to stakeholder consultation for the EIS development process;

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2. McHarg, I. L., 1969, *Design with Nature*, The American Museum of Natural History Doubleday / Natural History Press, New York, USA.

- identifies the key issues for the particular project;
- includes the results of the early consultation, including in relation to landscape values, and assesses the preliminary turbine layout against the preliminary assessment tools contained in the Visual Assessment Bulletin, including negotiations with landholders;
- provides a high level assessment of the environmental impacts of the project (focusing on those key issues); and
- reports on the progress of community consultation (see section 5.2).

The Secretary of the Department is required to issue SEARs for all SSD applications including wind energy projects. The assessment and consultation requirements are mandated in the SEARs for each DA. The Secretary is also required to consult with relevant government agencies in preparing the SEARs.

SEARs for an SSD wind energy project will be based on standardised requirements which the Department has developed, but will be adapted to suit the particular project for which they are issued.

The proponent must address all SEARs issued for a project in the project's EIS.

#### **4.3 Preparation of an Environmental Impact Statement**

##### **4.3.1 Describing the design of your project**

As part of preparing an EIS, proponents must include a full description of their project, including:

- all development activities that may be undertaken as part of the project, including ancillary infrastructure which could include concrete batching plants, substations and access to construction materials, as well as access tracks and roads, and any transmission lines associated with the project (see section 2.3.1 above); and
- the timing of each key phase of the project.

Information regarding any ancillary developments that are not being proposed as part of the DA, but are necessary to support the project (such as transmission lines not covered by the DA), should also be provided.

By this stage in the design process, the project should be defined to an extent whereby a proponent is able to justify the location and placement of turbines including how they have balanced the relevant social, economic and environmental impacts.

The project description should include a narrative describing the design process for the project. This should focus on the iterative process for identifying the final siting of specific turbines, including the justification for decisions to move, remove, or locate turbines in a specific location. This will require the proponent to articulate learnings about matters such as landscape values and other environmental considerations identified through community consultation and studies undertaken in the scoping and pre-lodgement stage. The description should also reference the outcomes from the application of the preliminary assessment tools required by the Visual Assessment Bulletin undertaken through the development of the project.

#### 4.3.2 Describing the likely impacts and mitigation and management options

The EIS for an SSD wind energy project should also include:

- an analysis of the likely impacts of the project;
- completed technical studies, including an accurate noise impact assessment for relevant dwellings undertaken consistent with the requirements of the Noise Assessment Bulletin;
- a visual assessment of the project in accordance with the Visual Assessment Bulletin, and, in particular, an analysis of the project against the performance objectives as well as photomontages showing the impacts at highly affected dwellings (subject to access considerations);
- details of community consultation undertaken, including any steps taken to check that the views and input of potentially affected people and groups have been faithfully and accurately captured and considered, and / or explain how their views and inputs have been taken into account;
- consultation with landowners with regards to impacts and mitigation, including negotiated agreements (subject to confidentiality considerations); and
- description of the measures that will be used to avoid, minimise, mitigate or otherwise manage impacts associated with the project – this should include an assessment of the effectiveness and reliability of the measures and any residual impacts and their acceptability after these measures are implemented.

#### 4.3.3 Micro-siting and environmental envelopes

For technical reasons (for example, geotechnical or access issues arising from detailed terrain surveying, or the discovery of matters of biodiversity or historic and / or Aboriginal cultural heritage importance), there may be the need to relocate wind turbines on site during construction. This is known as ‘micro-siting’.

Proponents must consider whether micro-siting is required for the proposed wind energy project and address any proposal for variability in the siting of turbines in the EIS preparation.

Micro-siting may be permitted provided it does not materially increase environmental impacts. Micro-siting that results in revised wind turbine and ancillary infrastructure locations must be consistent with the conditions of the development consent.

The Department will consider granting consent which allows siting of turbines within a development ‘envelope’. If a proponent wishes to obtain consent in this format, it must assess the effect of this (including the proposed parameters of the envelope) based on the highest impact scenario in the EIS.

#### 4.3.4 Refurbishment and decommissioning

Once installed, wind turbines typically have an expected operating life of around 20 to 25 years, at which point they are usually refurbished or decommissioned. Some turbines may be decommissioned or refurbished earlier.



Depending on their nature, the refurbishment of turbines may form part of a proposal for wind energy development and may be considered in the assessment and determination of that project. In some instances, the refurbishment or decommissioning of a wind turbine will not require a new DA or a modification of the existing consent, as the terms of the existing consent may authorise the refurbishment or decommissioning. The need for a modification or a new DA should be considered by the proponent in each instance by reference to what is proposed for the refurbishment or decommissioning.

The NSW Government's policy is that a wind energy project owner or operator, and not the 'host' landholder, should be responsible for decommissioning and rehabilitation at the end of life of a wind energy project or a particular turbine. Proponents must identify and address all relevant issues for decommissioning and rehabilitation in their project EIS, and include a commitment that the operator will be responsible for decommissioning and rehabilitation.

Both proponents and host landowners should consider refurbishment, decommissioning and rehabilitation when negotiating landowner agreements. Further information about negotiated agreements can be found in the Negotiated Agreement Advice Sheet at Attachment B.

#### 4.3.5 Noise and health

While the health impacts of any project are a relevant consideration in the assessment process, the level of assessment will be proportionate to the level of risk. The NSW Government's position on potential health impacts of wind energy projects continues to be informed by the scientific findings of the NHMRC.

In the most recent Statement "*Evidence on Wind Farms and Human Health*" (February 2015), the NHMRC concludes that there is currently no consistent evidence supporting a link between wind energy projects and adverse health outcomes in humans relating to infrasound. However, the NSW Government will continue to monitor contemporary scientific research outcomes to ensure its position reflects robust evidence on any health effects, including any advice released from the National Wind Farm Commissioner and the Independent Scientific Committee.

#### 4.4 Assessment

As with all SSD proposals, the consent authority will undertake a comprehensive assessment of the specific impact of each proposed wind energy project on its merits, as required by Section 79C of the EP&A Act.

Matters that a consent authority will consider when determining a wind energy project DA include, for example:

- suitability of the site for the wind energy project;
- submissions made by the local community, stakeholders and government authorities;
- the likely environmental, social and economic impacts of the construction, operation and decommissioning of the wind energy project in the locality;

- the relevant provisions of any environmental planning instrument (for example, LEP, SEPP) which regulates the permissibility of types of development in certain areas or provides other legally binding development requirements;
- the public interest which includes consideration of the objects of the EP&A Act and, in particular, the principles of ecologically sustainable development;
- the strategic context and alignment with relevant Government policies; and
- the assessment issues outlined in section 3.

Consideration will be given to the public interest in increasing the supply of renewable energy. For example, in the Taralga court case<sup>3</sup>, the Land and Environment Court considered the broad public interest in the establishment of viable renewable energy sources.

As often occurs for other SSD projects, the Department and the consent authority will consider the following in the assessment and determination of wind energy projects:

- existing development in the vicinity of the wind energy project, including dwellings;
- approved development within the vicinity of the wind energy project, including dwellings, that are approved but yet to be constructed or are under construction;
- development within the vicinity of a wind energy project for which a development application has been lodged, including with councils, but a determination is yet to be made; and
- existing dwelling entitlements on land within the vicinity of the wind energy project.

#### 4.5 Determination and conditions of consent

Following assessment of a wind energy development application, the consent authority will determine whether the project should be approved on its merits. This will include consideration of whether the project could be approved subject to conditions that will mitigate impacts to an acceptable level.

If consent is granted, it will be subject to a range of conditions for managing the impacts of the project. The conditions may require, for example:

- obligations to meet a performance outcome or objective;
- obligations to implement specific mitigation measures;
- obligations to monitor actual versus predicted impacts;
- obligations to monitor the effectiveness and outcomes of any mitigation strategies in accordance with agreed performance indicators and implement adaptive management strategies where required; and
- reporting and auditing requirements, including by requiring reporting of data.

Adaptive management frameworks can be implemented through conditions so as to require proponents to report to the Department, and publicly, against outcomes. If strategies are not meeting the required outcomes, adaptive management conditions can require proponents to propose new strategies to meet the outcomes.

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<sup>3</sup> Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd (2007) 161 LGERA 1.

The conditions may also require additional mitigation measures to be implemented, amendments to the project (such as deletion or re-siting of turbines), and / or as a last resort 'voluntary acquisition' for significantly affected landholders. Any voluntary acquisition process can only be initiated by the land owner and not the proponent.

Development consent conditions relating to acquisition requirements will only be imposed where all other reasonable and feasible mitigation measures have been considered, and the consent authority is satisfied that the economic, social and environmental benefits of the project outweigh its adverse impacts.

Alternatively, the consent authority may conclude that the benefits of the project do not outweigh its impacts, and the project will be refused.

## 5. Community and stakeholder consultation

### 5.1 Importance of consultation

Early, meaningful and innovative community consultation, demonstrating an ongoing commitment to providing clear information and ensuring opportunities for genuine input, is important to delivering good planning outcomes.

The Department routinely requires early consultation for a range of SSD projects. Earlier and better consultation has a range of benefits for communities and proponents, including:

- informing the community about the project and the strategic context;
- gathering valuable knowledge from the community; and
- establishing relationships between the proponent and the community.

It also enables communities to be engaged when there are real opportunities to influence projects and decisions, such as at the siting and design stage.

Proponents should undertake a comprehensive, detailed and genuine community consultation process throughout the assessment process, including at the siting and pre-lodgement stage. The process should ensure there is active engagement with communities potentially affected by a wind energy project as early as possible, so that they are sufficiently informed regarding possible impacts and given reasonable opportunities to provide their views on the proposal.

Consultation should be aimed at identifying and considering options for eliminating, reducing or otherwise managing impacts, not merely informing communities on the proposed layout. Proponents should seek, as far as practicable, to address landowner issues before lodging a DA for an SSD wind energy project. This should include agreements in relation to land access and appropriate responses to the concerns and impacts on other potentially affected landowners.

This Guideline outlines key stages for consultation and issues to be addressed including:

- assisting **landholders and communities** to understand wind energy development, the development assessment process, how a proposal may affect them, and appropriate stages at which community consultation should be undertaken; and
- assisting **proponents** to address community concerns regarding the design, development, construction, operation and decommissioning of wind energy facilities, in a transparent way.

This Guideline and relevant Assessment Bulletins, including the Community Consultative Committee Guidelines for state significant projects (the CCC Guidelines), provide direction on effective and mutually-beneficial ways to deliver meaningful community consultation and impact management options for wind energy proposals. The CCC Guidelines are referenced in the standard SEARs for wind energy development.

## 5.2 When and whom to consult

Proponents should engage in consultation at all stages of wind energy project development, including siting and design, planning and EIS, construction, operation, decommissioning, and rehabilitation phases. The nature and extent of consultation that is appropriate will depend on the circumstances of the project and the stage of development which the wind energy project has reached. It is important that when identifying affected people and groups, that an inclusive approach is taken that recognises that different perspectives may exist within a community (for example differences in ages, gender, income, etc). The principles of ecologically sustainable development also require that the impacts of a project on future generations to be considered.

Overall, the level and types of engagement required will depend on the project context, including:

- the size of the locality likely to be affected;
- how diverse the potentially affected people and groups are;
- the range and types of issues involved; and
- the needs of particular audiences (for example, cultural appropriateness, capacity to participate).

Community and other stakeholders who should be consulted may include:

- the community, in relation to landscape values, as required by the Visual Assessment Bulletin;
- owners and occupiers of land proposed to host wind turbines or related infrastructure, owners and occupiers of land required for access during construction and/or maintenance, or landowners who have reached a financial or in-kind agreement in relation to the proposal (associated properties);
- landowners who have not reached a financial or in-kind agreement in relation to the proposal (non-associated properties);
- organisations representing local, regional, State, national and international interests regarding business, community, indigenous and environmental issues;
- relevant local council(s), including neighbouring councils where proposals are located in or affect more than one local government area; and
- stakeholders of other significant infrastructure near the proposed wind energy site.



The Department will consider the impacts of a proposal on all properties. In some instances, a private agreement may be negotiated and voluntarily entered in to between a proponent and a landowner to manage some or all impacts on that property.

The standard SEARs for SSD wind energy projects outline the **minimum** consultation requirements for SSD wind energy projects during the assessment process. However, there is significant value in proponents engaging in innovative ways with affected communities and other stakeholders in the initial stages of the project, including before SEARs are requested.

#### 5.2.1 Shared benefits and negotiated agreements

The Department recognises that proponents and landholders should be free to discuss matters which are relevant to their circumstances. The Department considers that agreements with landholders and local communities provide opportunities for them to share in some benefits from the location of the wind energy project and for the proponent to enhance the community support for its project.

‘Benefit sharing’ aims to distribute benefits generated by a project between the proponent and the community through mutually agreed opportunities. Whilst this is not required under the NSW planning system there are a number of different mechanisms for creating and utilising benefit sharing opportunities, and priority should be given to initiatives that deliver public benefit, particularly in areas in the vicinity of the project. For example, it is not uncommon for proponents of SSD developments in a particular community to establish a community enhancement fund to sponsor particular community projects or community groups, such as the provision of grants or contributions to infrastructure.

Community enhancement funds are often set up and administered by developers for various types of industrial developments in rural locations. The preferred means of administering community enhancement funds is under a voluntary planning agreement with the relevant local council/s, and proponents for wind energy projects could consider similar initiatives in the context of their projects. Governance arrangements for the voluntary planning agreement could be administered under section 355 of the *Local Government Act 1993*.

Where impacts are more specific to identifiable landholders, it may be appropriate for proponents and landholders to negotiate agreements regarding the management of those impacts. Some specific wind energy impacts are described in section 3. It is up to proponents and landholders to agree what is appropriate to manage impacts (including at different stages of the project’s life) in their particular circumstances. Further information about negotiated agreements can be found in the Negotiated Agreement Advice Sheet at Attachment B.

The consent authority will carry out an assessment of all relevant issues for a wind energy project. A landholder arrangement may provide a useful way of managing one or more of these issues for the landholder’s property.

### 5.3 Example of a consultation model

The consultation process should address the key matters that will be considered in the assessment and determination of wind energy projects outlined in section 3 above. Table 1 provides some guidance for proponents to structure community and landholder consultation.

**Table 1. Community and landholder consultation stages**

Project Stage	Consultation
Scoping and pre-lodgement of request for SEARs	<p>Consult with potentially affected stakeholders to identify the constraints and opportunities of the project area. Consultation could involve engagement on the values the wider community place on those attributes, and should inform the siting and design process.</p> <p>Engage with the community in the identification of landscape values, as required by the <i>Wind Energy: Visual Assessment Bulletin</i>.</p> <p>Engage with landholders about the proposed project area, likely corridors for development, or preliminary turbine layouts, access routes and potential location of ancillary infrastructure (consider “associated properties” and “non-associated properties”). Listen to the community’s concerns and suggestions. Discuss noise, visual impact, proposed siting and alternatives.</p> <p>Discuss issues for landholder agreement if project is approved including siting and micro-siting, access, compensation, responsibility for decommissioning and rehabilitation.</p>
EIS preparation and assessment and evaluation of impacts	<p>Establish and operate a Community Consultative Committee (CCC).</p> <p>Identify and appropriately respond to community concerns in the EIS.</p> <p>Public exhibition will provide a formal opportunity for stakeholders to express their views on the proposed project.</p> <p>Further collaborate with the community regarding solutions and management options for any key issues raised.</p> <p>Seek to reach an agreed position with relevant landholders.</p> <p>Consider opportunities for benefit sharing.</p>

Project Stage	Consultation
Post-determination (if approved)	<p>Finalise remaining landholder agreements post-approval but prior to commencing work.</p> <p>Ongoing consultation with landholders and the community to manage issues regarding construction noise and disturbance.</p> <p>Implement appropriate opportunities for benefit sharing.</p> <p>Community complaints line to be maintained.</p> <p>Maintain operation of the CCC.</p> <p>Comply with any requirements to publish performance results via the project website.</p> <p>Responsibility for decommissioning and rehabilitation will have been determined through the landholder agreements and the conditions of consent.</p>

## 6. Post approval regulation

The regulation of SSD wind energy project construction, operation, decommissioning and rehabilitation is primarily coordinated by:

- the Department, to ensure compliance with development consent conditions; and
- the EPA, to ensure compliance with EPL conditions.

If development consent is granted for a SSD wind energy project, the conditions of consent will continue to apply to the project and the land on which it is located throughout its life. The responsibility for compliance with the conditions of consent under the EP&A Act falls to the person carrying out the development.

Development consent conditions will likely include matters such as:

- operational noise limits;
- a Noise Compliance Report to demonstrate compliance with the noise limits following commissioning;
- visual impact mitigation, such as screening at affected dwellings;
- road upgrades and maintenance requirements;
- a traffic management plan including designated transport routes for over-sized vehicles;
- implementation of a biodiversity offsets strategy;
- measures to prevent water pollution;
- an Aboriginal Heritage Management Plan to be prepared and implemented in consultation with the local Aboriginal community;
- obligations to manage risks associated with aviation, bushfire, and telecommunications, in consultation with the relevant authorities;
- adaptive management strategies;
- decommissioning and rehabilitation of the site;
- establish and operate a CCC for the project; and
- requirements for regular monitoring and reporting of the environmental performance of the project over time.





## 7. Compliance

The Department's regional compliance teams are responsible for monitoring compliance with the conditions of consent for approved wind energy projects, including following up suspected breaches reported by members of the public. The general email for reporting suspected breaches is [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au). Further details can be found on the Department's website at [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au).

The compliance team also undertakes periodic audits of approved or operating wind farms.

Proponents are also required to establish and operate a complaints handling system which is required through a condition of consent as part of the approval of a project.

The EPA is responsible for regulating the environmental impacts from the operation of wind turbines. The EPA's pollution hotline is 131 555.

Additionally, the National Wind Farm Commissioner holds an independent role and has been appointed by the Australian Government, reporting to the Minister for the Environment. The Commissioner's role is to receive and refer complaints from concerned community residents about wind farms, as well as promote best practices for industry and government to adopt in regard to the planning and operation of wind farms. Details for the National Wind Farm Commissioner can be found at [www.nwfc.gov.au](http://www.nwfc.gov.au)

## Attachment A – Assessment pathways for wind energy projects

The table below provides a general overview of wind energy project categories and planning assessment pathways. Large-scale SSD wind energy developments to which this Guideline applies are shaded in blue.

**Table 2. Overview of wind energy categories and planning assessment pathways**

CIV and output criteria	Environmental Planning Instrument	Development category	Consent authority
CIV less than \$5M and output less than 30 MW	Infrastructure SEPP	Local Development	Local Council
CIV \$5-30M and output less than 30 MW	Infrastructure SEPP Schedule 4A, EP&A Act	Regional Development	Joint Regional Planning Panel
CIV less than \$5M and output 30 MW +	Infrastructure SEPP Schedule 3, EP&A Reg	Local Development and Designated Development	Local Council
CIV \$5-30M and output 30 MW +	Infrastructure SEPP Schedule 4A, EP&A Act Schedule 3, EP&A Reg	Regional Development and Designated Development	Joint Regional Planning Panel
CIV \$30M or more*	SRD SEPP	SSD	Planning Minister or delegate (Planning Assessment Commission or senior departmental officer)
CIV \$30M or more* and output 30 MW +	SRD SEPP Schedule 3, EP&A Reg	SSD (with some "designated development" legal consequences)	Planning Minister or delegate (Planning Assessment Commission or senior departmental officer)

\* If proposed in an environmentally sensitive area of State significance, the CIV threshold is \$10M or more.



## **Attachment B – Negotiated Agreements Advice Sheet for wind energy projects**

The planning system allows proponents and landowners to enter into negotiated agreements to manage exceedances of the relevant assessment criteria as well as decommissioning and removal of turbines at the cessation of operation. Agreements can:

- be specifically tailored to the individual circumstances of the landowner; and
- provide for the implementation of a broader suite of measures, such as financial compensation, acoustic treatments to buildings, landscaping and screening, and arrangements for decommissioning and rehabilitation of the site.

Proponents must ensure that landowners are properly informed of the implications of entering into such agreements, and have a good understanding of the nature and scale of the predicted impacts, through the provision of relevant noise and visual impact predictions.

To ensure these agreements are effective, it is also important to ensure that they comply with certain minimum standards. Negotiated agreements must:

- be enforceable in a court of law;
- remain in force for at least the duration of any predicted exceedance of the relevant assessment criteria;
- provide for the transfer of obligations to any new owner of the wind energy development if the wind energy development is subsequently sold;
- provide for the transfer of obligations to any new landowner if the subject property is subsequently sold;
- clearly identify the scope of any impacts which are the subject of the agreement;
- should not prevent a landholder from raising concerns about breaches of an approval other than those they have agreed to accept;
- provide for ongoing monitoring (if required); and
- provide for a means of resolving disputes.

Finally, the proponent should bear all reasonable costs, including the landowner's costs for independent advice, associated with either entering into the agreement or understanding the implications of the agreement.



*For more information about Wind Energy Guideline  
visit [planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy](http://planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy)*

Department of Planning  
and Environment



# Large-Scale Solar Energy Guideline

August 2022

[dpie.nsw.gov.au](http://dpie.nsw.gov.au)



# Acknowledgment of country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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# Abbreviations

<b>BDAR</b>	Biodiversity development assessment report
<b>BSAL</b>	Biophysical strategic agricultural land
<b>CIC</b>	Critical industry cluster
<b>CIV</b>	Capital investment value
<b>DA</b>	Development application
<b>EIS</b>	Environmental impact statement
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i>
<b>EP&amp;A Reg</b>	<i>Environmental Planning and Assessment Regulation 2021</i>
<b>EPA</b>	NSW Environment Protection Authority
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>EPI</b>	Environmental planning instrument
<b>EPL</b>	Environment protection licence
<b>LEP</b>	Local environmental plan
<b>LSC Class</b>	Land and soil capability class
<b>PV</b>	Photovoltaic
<b>REZ</b>	Renewable energy zone
<b>RSD</b>	Regionally significant development
<b>SEARs</b>	Secretary's environmental assessment requirements
<b>Transport and Infrastructure SEPP</b>	<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>
<b>SSD</b>	State significant development
<b>VPA</b>	Voluntary planning agreement



# Glossary of terms

<b>Applicant</b>	The applicant of an SSD project seeking consent for a development application or modification application
<b>Associated residence</b>	A residence on privately-owned land in respect of which the owner has reached an agreement with the applicant in relation to the development and management of impacts
<b>Benefit sharing</b>	Benefit sharing aims to distribute benefits generated by a project between the applicant and the community through mutually agreed opportunities such as funding or sponsoring local community initiatives, programs or projects
<b>Consent authority</b>	The authority responsible for granting or refusing consent for a development application or modification application
<b>Department</b>	The Department of Planning and Environment
<b>Decommissioning</b>	The removal of solar panels and ancillary infrastructure
<b>Development application (DA)</b>	An application made seeking consent for SSD or RSD under Part 4 of the EP&A Act
<b>Environmental impact statement (EIS)</b>	An environmental impact statement prepared by or on behalf of the applicant to accompany a DA. It involves a comprehensive assessment of the environmental, social and economic impacts of a project.
<b>Glare</b>	A continuous source of bright or strong light caused by the reflection of sunlight on a solar energy project
<b>Glint</b>	A momentary flash of bright or strong light caused by the reflection of sunlight on a solar energy project
<b>Important agricultural land</b>	Land mapped as BSAL or a critical industry cluster, land of LSC classes 1–3 and farmland mapped as state or regionally significant on the north coast
<b>Large-scale solar energy project</b>	Works, infrastructure and buildings for the purpose of generating electricity using ground-mounted photovoltaic panels that are state significant development (SSD)
<b>Landscape</b>	A holistic area comprised of its various parts including landform, vegetation, buildings, villages, towns, cities and infrastructure
<b>Landscape character</b>	An area or sense of place definable by the quality of its built, natural and cultural elements
<b>Modification application</b>	An application seeking to modify a development consent, which may include revoking or varying a condition of consent  A modification requires consent under the EP&A Act

Glossary of terms

<b>Magnitude</b>	The apparent size of a solar energy project in the landscape or when viewed from a given viewpoint
<b>Non-associated residence</b>	<p>A residence on privately-owned land in respect of which the owner has not reached an agreement with the applicant in relation to the development</p> <p>or</p> <p>A residence on privately-owned land in respect of which the owner has reached an agreement with the applicant in relation to the development, but the agreement does not cover the relevant impact</p> <p>or</p> <p>The performance measure for such impact under that agreement has been exceeded</p>
<b>Planning Secretary</b>	The Secretary of the Department of Planning and Environment
<b>Rehabilitation</b>	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
<b>Renewable Energy Zone (REZ)</b>	A designated area to support renewable energy development as declared in the <i>Electricity Infrastructure Investment Act 2020</i>
<b>Regionally significant development</b>	A development deemed to have regional significance due to its size, economic value or potential impacts
<b>SEARs</b>	The Planning Secretary's environmental assessment requirements, which set out the matters that must be addressed in an EIS
<b>Sensitivity</b>	An element of landscape and visual impact assessment that defines the capacity to absorb the impacts from a proposed land use change and/or built form
<b>State significant development</b>	A development declared to have state significance due to its size, economic value or potential impacts
<b>Viewpoint</b>	A location within the private or public domain with a potential view of a large-scale solar energy project
<b>Visual magnitude</b>	The apparent size of a solar energy project in the landscape or when viewed from a given viewpoint

# 1

## Introduction

# 1. Introduction

The transformation of the global energy sector presents a huge opportunity for Australia. Renewables are now the cheapest form of new generation, and technology is available to support large-scale energy storage.

Australia has world-class renewable energy sources and the highest average solar radiation per square metre of any continent in the world. New South Wales (NSW) has an abundance of excellent solar resources and established electricity infrastructure that, along with declining technology costs, makes it an attractive location for solar energy development.

The NSW Government supports the development of a sustainable solar energy industry in the state. Solar energy will help reduce reliance on fossil fuels, air pollution and greenhouse gas emissions and deliver a reliable and affordable energy supply to the people of NSW.

This Large-Scale Solar Energy Guideline provides the community, industry, applicants and regulators with guidance on the planning framework for the assessment of large-scale solar energy projects under the *Environmental Planning and Assessment Act 1979 (EP&A Act)*.

The guideline is supported by a technical supplement for landscape and visual impact assessment which provides additional guidance and tools for assessing, evaluating, and mitigating visual and landscape impacts.

The Department of Planning and Environment will review and update this guideline from time to time to ensure it reflects any changes in knowledge and technology as the solar industry continues to develop and evolve.

## 1.1 Objectives

The objectives of the guideline are to:

- support the development of a sustainable solar industry in NSW by providing a clear, consistent and responsive policy framework
- encourage industry to select suitable sites for projects to avoid or reduce the likelihood and extent of land use conflicts and environmental and social impacts
- provide clear and consistent guidance on how to measure and assess key environmental impacts of large-scale solar energy projects in NSW
- promote meaningful, respectful, effective and best practice community and stakeholder engagement throughout the development assessment process.

## 1.2 Application of the guideline

This guideline applies to the development of large-scale solar energy projects that are declared as a state significant development (SSD) and include works, infrastructure and buildings (including battery energy storage systems) for electricity generation using ground-mounted photovoltaic (PV) panels.



## 1. Introduction

Large-scale solar energy projects that use other technologies (such as concentrated thermal, lens concentrators) are not covered in this guideline as they are likely to have different site selection and impact assessment issues.

Applicants of large-scale solar energy projects must consider the guideline and supporting technical supplement for landscape and visual impact assessment where it is referenced in the Secretary's environmental assessment requirements (SEARs) and prepare its environmental impact statement (EIS) in accordance with the technical guidance.

The guideline and supporting technical supplement for landscape and visual impact assessment should also be considered when preparing and assessing applications to modify an SSD consent for large-scale solar energy development. Applicants are encouraged to consult with the department when determining the level of assessment that should be undertaken.

Although large-scale solar energy projects are the focus of this guideline, applicants, councils and planning panels are encouraged to consider the objectives and principles when preparing, assessing and determining solar energy development applications (DAs) for regionally significant development. The assessment process and level of detail required in a statement of environmental effects should be proportionate to the scale of the development and the likely impacts.

## 1.3 Strategic context

In March 2020, the NSW Government released the first stage of its [Net Zero Plan](#), which outlines a clear objective to achieve net zero emissions by 2050 while also creating new jobs, reducing household costs and attracting investment to NSW. To achieve these targets, 4 of 5 coal-fired power stations will come to their scheduled end of life in the next 15 years. These 4 power stations currently generate approximately 75% of NSW's annual electricity.

An increasing supply of renewable energy generation, including solar power, will be required over the coming decades to meet the NSW Government's net zero target. The NSW

Government's Electricity Infrastructure Roadmap sets out a 20-year plan to deliver this generation infrastructure, as well as the storage, firming and transmission infrastructure required to ensure NSW has continued access to cheap, clean and reliable energy as coal-fired power stations are retired.

Large-scale solar energy projects can support jobs and investment in regional NSW and have the potential to increase the resilience of regional towns during the state's transition to renewable energy generation. The roadmap is estimated to attract up to \$32 billion of private sector investment in electricity infrastructure by 2030, supporting 6,300 construction jobs and 2,800 ongoing jobs, most of which will be in regional NSW.

### 1.3.1 Renewable energy zones

As part of the roadmap, the NSW Government has introduced 'renewable energy zones' (REZs) that will expand transmission and generation capabilities in strategic areas across NSW.

REZs are modern-day power stations. They combine renewable energy generation such as wind and solar, storage such as batteries, and network infrastructure such as high-voltage poles and wires in dedicated areas in NSW.

The NSW Government will deliver at least 5 REZs in the Central-West Orana, New England, South-West, Hunter Central Coast and Illawarra regions of NSW under the roadmap. The Energy Corporation of NSW will lead the coordination and delivery of these REZs.

The NSW Government will encourage development in REZs to support a transition to renewable energy. This will ensure that development occurs in appropriate areas close to existing transmission and distribution infrastructure and has fewer environmental, heritage and land-use constraints than some other parts of NSW.

Notwithstanding, a large portion (approximately 70%) of existing solar development is currently located outside REZs and continued development outside of the REZs will be required to support a transition to renewable energy. This guideline applies to large-scale solar energy projects both inside and outside the REZs.

# 2

## Planning framework



## 2. Planning framework

The EP&A Act sets out the environmental planning and assessment framework for all development in NSW. This framework identifies where large-scale solar energy development may be permitted and the process by which it must be assessed and determined.

### 2.1 When is a solar energy project a ‘state significant development’?

A solar energy project is SSD<sup>1</sup> if it requires development consent and has:

- a capital investment value of more than \$30 million, or
- a capital investment value of more than \$10 million and is in an environmentally sensitive area of state significance<sup>2</sup>.

The Minister for Planning may also, by way of an order, declare specified development on specified land to be SSD. The Minister for Planning is generally the consent authority for SSD, and a senior departmental officer may exercise the minister’s consent authority functions in accordance with certain delegations.

However, the Independent Planning Commission is the consent authority for SSD applications in the following circumstances (unless the application to carry out the development is made by or on behalf of a public authority or unless the development is declared to be SSI related development):

- 50 submissions of objection (other than from council) are made during the exhibition of the application
- the local council objects to the SSD application
- the applicant has disclosed a reportable political donation.

### 2.2 Where is large-scale solar energy development allowed?

The EP&A Act and relevant environmental planning instruments (EPIs), including local environmental plans (LEPs) and state environmental planning policies (SEPPs), determine where large-scale solar energy development is permitted.

Key provisions include:

- the zoning and land use provisions of the relevant LEP/s
- Part 2.3, Division 4 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) (electricity generating works).

In general, large-scale solar energy development is permissible with consent on any land zoned for rural (RU1, RU2, RU3, RU4), industrial (IN1, IN2, IN3, IN4), or special purpose (SP1, SP2) uses in the relevant LEP<sup>3</sup>.

Where large-scale solar energy development is permitted with consent, the applicant can lodge a DA for determination by the relevant consent authority if it has the consent of the owner of the land.

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<sup>1</sup> 4.36, EP&A Act; section 2.6 and schedule 1, section 20, *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP).

<sup>2</sup> ‘Environmentally sensitive area of State significance’ is defined in section 2.2, Planning Systems SEPP.

<sup>3</sup> Section 2.36(1)(b), TI SEPP.



## 2. Planning framework

### 2.2.1 Landowners' consent

If the applicant is not the owner of the land to which the DA relates (or is not the only owner), the DA may only be made with the consent of the owner of the land<sup>4</sup>. If there is more than one landowner, the consent of all landowners must be obtained (subject to the exceptions in s 23(2) EP&A Regulation 2021).

The consent of the owner of the land is not required for a DA made by a public authority provided the applicant gives notice in accordance with sections 23(3) and (4) of the EP&A Regulation.

It should be noted that the landowner is not required to carry out the development if approved.

If there is more than one landowner, the consent of all landowners must be obtained (subject to the exceptions in s 23(2) EP&A Regulation 2021).

If a project is proposing changes to an existing substation, consent must be obtained from Transgrid or the relevant provider.



### 2.2.2 Regional cities

The NSW Government's regional plans identify cities that are strategically important to the ongoing growth and development of regional NSW.

Over the next few decades, significant population growth is predicted in regional cities and investment in these cities is important as they represent major centres for housing, employment, commerce, tourism, education, health and other regional infrastructure and services.

For large-scale solar energy development to be approved near certain regional cities, the consent authority will need to be satisfied that any urban land conflicts, impacts on urban growth potential and important scenic values are not significant.

The Transport and Infrastructure SEPP provides for the specific consideration of renewable energy proposals in regional cities<sup>5</sup>. The provisions apply to SSD development for solar energy generation located on mapped land for the regional cities of Albury, Armidale, Bathurst, Dubbo, Griffith, Orange, Tamworth and Wagga Wagga.

While these provisions do not prohibit solar development in these areas, a consent authority must not grant development consent unless it is satisfied that the development:

- is located to avoid significant conflict with existing or approved residential or commercial uses of land surrounding the development, and
- is unlikely to have an adverse impact on the regional city's capacity for growth, or scenic quality and landscape character.

In considering these matters, the consent authority must factor in any proposed measures to avoid or mitigate those conflicts and adverse impacts.

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<sup>4</sup> Section 23(1)(b), *Environmental Planning and Assessment Regulation 2021* (EP&A Reg).

<sup>5</sup> Section 2.42, TI SEPP.



2. Planning framework

## 2.3 Process for assessing large-scale solar energy projects

### 2.3.1 Development applications

All DAs for large-scale solar energy development will be subject to a comprehensive assessment that includes extensive community consultation and a detailed consideration of any environmental, social and economic impacts.

The main steps in the assessment process are shown in **Figure 1** and summarised below. The process is explained in more detail in the department's [State Significant Development Guidelines](#).

All SSD DAs must be accompanied by an EIS. The purpose of the EIS is to help the community, councils, government agencies and the consent authority understand the impacts of a project so they can make informed submissions or a decision about a project's merits.

The EIS must be prepared in accordance with the SEARs. The SEARs identify the information that must be provided in the EIS, and the community engagement that must be carried out.

Large-scale solar energy developments may be eligible for industry-specific SEARs, which are tailored specifically to the relevant industry and are issued by the department within 7 days of an application being made. A project will be eligible if it is wholly permissible with consent, would not meet the criteria for designated development and is not a concept DA. Large-scale solar energy development would meet the criteria for designated development (if it was not SSD) if it:

- includes a battery storage facility that can supply more than 30 megawatts of power<sup>6</sup>
- is located on a floodplain and includes photovoltaics that can supply more than 30 megawatts of power<sup>7</sup>.

In all other circumstances the department will issue project-specific SEARs and the applicant must submit a scoping report with its SEARs application. This scoping report must be prepared to a high standard having regard to the department's [State Significant Development Guidelines](#).

Once the department receives the EIS, it will exhibit the DA for at least 28 days, or longer if the exhibition period extends over the Christmas and New Year period<sup>8</sup>. This gives the community an opportunity to have a say on the merits of a project before any final decision is made.

The consent authority will assess the overall significance of any impacts by reviewing the environmental assessment and any relevant submissions received and considering the broader public interest.

### 2.3.2 Modification applications

An applicant may apply, under the EP&A Act, to amend an SSD development consent. A consent authority may modify consent for an SSD provided that, among other matters, the development as modified will be substantially the same as the development for which the consent was originally granted.

Modifications may be necessary to change or improve the design of the project (for example, by adding battery storage, increasing the size and height of solar panels) or to change the conditions of the development consent.

A modification of a development consent must be assessed and determined under the EP&A Act and in accordance with the process described in the department's [State Significant Development Guidelines](#).

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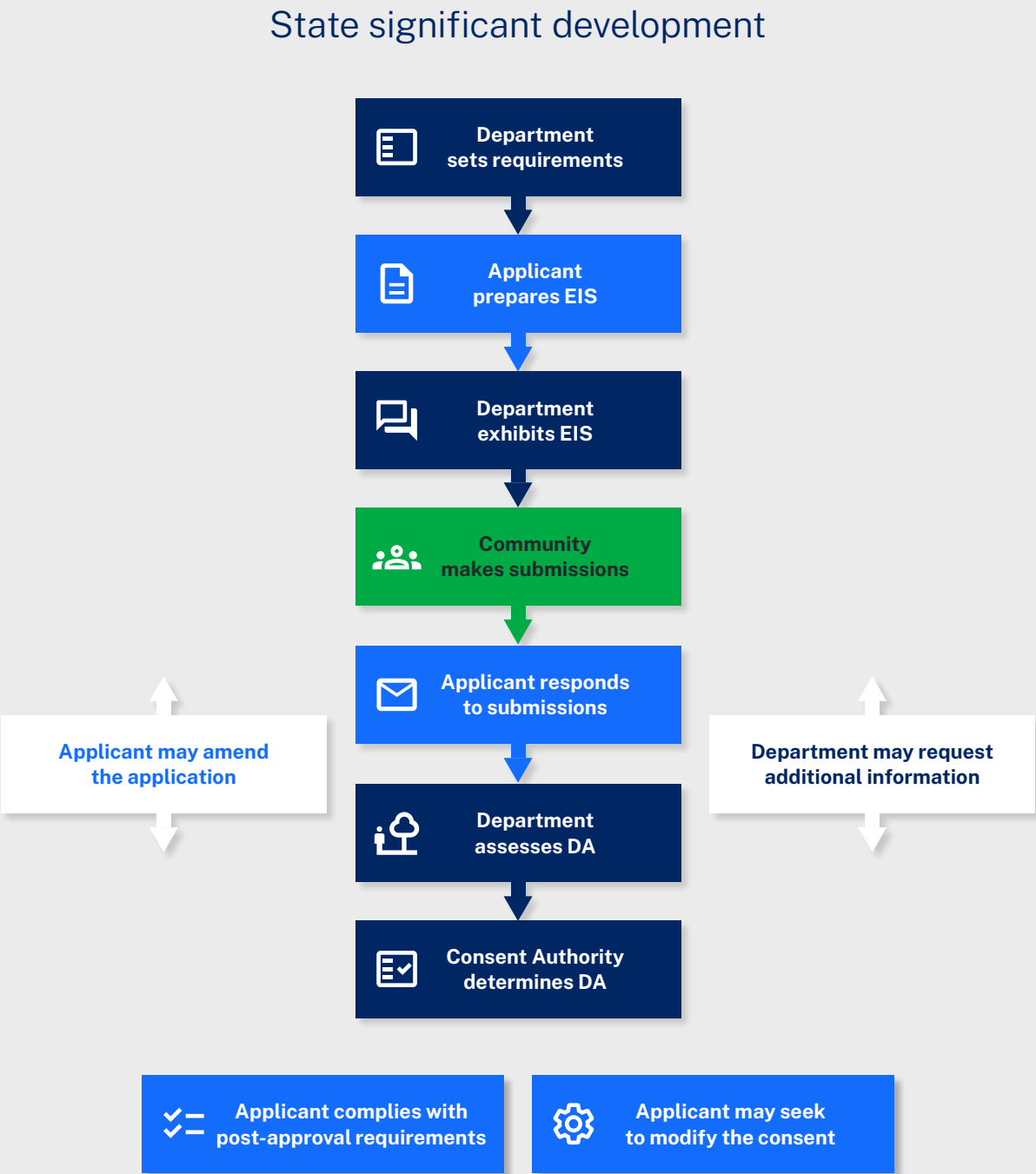
<sup>6</sup> Section 7 and schedule 3, EP&A Reg.

<sup>7</sup> Section 7 and schedule 3, section 24(3), EP&A Reg.

<sup>8</sup> Schedule 1, Clause 16, Environmental Planning and Assessment Act 1979.

2. Planning framework

Figure 1: SSD assessment steps



## 2. Planning framework

### 2.4 Other approvals that may be needed

This section outlines some of the other approvals that may be required in addition to the development consent. If in doubt about what approvals are required, applicants should consult the department or relevant government agency for further information.

#### 2.4.1 Commonwealth approval

Under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act), an approval from the Commonwealth Government may be required if a development is likely to have a significant impact on matters of national environmental significance or other protected matters. This includes, but is not limited to, listed threatened species and ecological communities.

An applicant must refer their project to the Commonwealth Department of Climate Change, Energy, the Environment and Water if it is likely to have a significant impact on matters of national environmental significance. The Commonwealth Government's [Significant Impact Guidelines](#) provide guidance on whether or not an impact is likely to be significant. Referrals can be made on the Commonwealth Government's [EPBC Act Business Portal](#).

#### 2.4.2 Subdivisions

Some sites may require the subdivision of land to support the proposed development. For example, subdivisions may be required for substations within a project site, or for land that will be leased for longer than 5 years<sup>9</sup>.

If an applicant wishes to include a subdivision in the scope of its SSD application, it should first discuss subdivision options with the relevant council. This consultation will allow applicants to make an informed decision regarding whether to include the subdivision in its SSD application.

#### 2.4.3 Network connections

Large-scale solar energy developments will generally need connections to the electricity transmission network or distribution grid to enable the distribution of the generated electricity. This may also include associated infrastructure such as substations, access roads and transmission lines.

Applicants are encouraged to consult with the relevant transmission or distribution network service provider early in the project planning process to identify the scope of works required to enable connection, and to determine the planning assessment pathway for those works.

Applicants should include network connection works as part of their DA to help streamline stakeholder engagement and to ensure that all aspects of the development are considered by the department during the assessment process. The potential environmental impacts of network connections, including impacts to agricultural land and biodiversity values, must be assessed in the EIS.



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<sup>9</sup> Section 7A, Conveyancing Act 1919 (NSW).

2. Planning framework

## 2.5 Regulation of approved large-scale solar developments

Development consent for a large-scale solar energy development will typically be subject to a range of conditions for managing and mitigating the impacts of the development, including but not limited to:

- visual impact mitigation, such as landscaped screening at affected dwellings
- road upgrades, site access and maintenance requirements
- stormwater management, erosion and sediment control and flood mitigation works
- biodiversity management and mitigation measures
- heritage protection measures
- obligations to manage risks associated with bushfire and dangerous goods
- decommissioning and rehabilitation of the site including performance objectives
- requirements for the minimisation and management of waste.

If development consent is granted for a large-scale solar energy development, the conditions of consent will continue to apply to the project and the land on which it is located throughout its construction and operational life as well as during decommissioning and rehabilitation phases.

### 2.5.1 Compliance

Applicants are responsible for complying with the conditions of consent under the EP&A Act.

The department's compliance teams are responsible for monitoring compliance with the conditions of consent for approved SSD solar energy projects, including following up suspected breaches reported by members of the public.

Compliance-related complaints regarding SSD solar development consents can be made by completing and submitting the [Make a complaint form](#). The department's compliance team will contact the complainant within 14 days to seek further information or provide a progress update.

All large-scale solar energy development must comply with the Protection of the *Environment Operations Act 1997* (POEO Act), which aims to prevent the degradation of the environment by promoting pollution prevention, elimination of harmful wastes and the re-use, recovery or recycling of materials.

Local councils and other local authorities are generally the appropriate regulatory authority for the purposes of the POEO Act in relation to large-scale solar energy development, except in circumstances where activities relate to the exercise of functions under an environment protection licence.

An environment protection licence under the POEO Act is generally not required for a large-scale solar development. However, an environment protection licence is required in circumstances where the solar energy development is a hybrid system or combined energy generating system that incorporates other energy sources such as gas. In these limited circumstances, the NSW Environment Protection Authority is the regulatory authority for the purpose of the POEO Act.



# 3

## Community and stakeholder engagement



## 3. Community and stakeholder engagement

Effective community and stakeholder engagement is essential for the development of the large-scale solar energy industry and the environmental assessment process. It is important for applicants to consider a diverse range of views to achieve positive outcomes.

Applicants must undertake meaningful engagement with stakeholders throughout the environmental impact assessment process and during the construction and operation phases of a project. This consultation must be undertaken in accordance with the [Undertaking Engagement Guidelines for State Significant Projects \(PDF 1,773 KB\)](#) (November 2021).

These guidelines include requirements for applicants to:

- provide clear and concise information to the community and stakeholders about projects and their impacts
- implement activities that encourage and facilitate public participation
- report back on what was heard and what has or hasn't changed in response to this feedback and why.

The SEARs and consent conditions may include additional consultation requirements that must also be complied with.

The community should be engaged as early as possible to identify potential opportunities and constraints associated with the proposed development. The applicant should identify the elements of the project and the environmental assessment that can be influenced or shaped by the community. These could relate to the design of the project, the characterisation of the area and/or the management and mitigation measures that can be implemented. Examples include:

- positioning and siting of the project including any setbacks
- characterisation of the scenic quality and sensitivity of the landscape and viewpoints (see the technical supplement for landscape and visual impact assessment)
- visual impacts including mitigation measures.

Applicants must also ensure that stakeholders are given the opportunity to participate in the engagement process in a meaningful way. Details of consultation activities undertaken with surrounding residents, community members, relevant authorities and councils should be clearly outlined in the EIS. This should include key matters raised and how feedback was considered and incorporated into the project.

Where multiple projects are being proposed in close proximity, applicants may consider conducting combined engagement activities to reduce consultation fatigue and provide greater transparency to the community.

### 3. Community and stakeholder engagement

Applicants should continue to engage with stakeholders after any development consent has been granted and must have an effective complaint handling system which ensures that community concerns are addressed in a timely manner.

The department also has a role to play in consulting with stakeholders and the community. It is required to:

- consult with relevant government agencies and councils
- exhibit the EIS for public comment for a minimum of 28 days
- publish documents and submissions relating to the project on the planning portal
- ask the applicant to respond to issues raised in submissions to help the community and stakeholders understand how issues have been addressed and considered
- outline its decision or recommendation, including how community feedback was considered.





# 4

## Site selection





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## 4. Site selection

Good site selection provides an opportunity to avoid or minimise negative impacts at the outset of a development, allowing the design and assessment of a project to focus on mitigating and managing unavoidable impacts.

### 4.1 Importance of site selection

Well-sited solar energy projects can have minimal impacts on the environment, surrounding land uses and the community. A good site may result in greater social licence to operate, shorter assessment timeframes, reduced offset obligations and fewer conditions of consent to manage residual impacts.

Sites with multiple environmental and planning constraints may still be capable of being developed in a suitable manner with good design, innovation and appropriate mitigation measures in place. The consent authority is obliged to consider the merits of each application.

If the applicant is not proposing to avoid constraints, justification for site selection and the layout of the development must be clearly outlined in the EIS.

### 4.2 Process of site selection

There are many technical and commercial factors that need to be considered when selecting a site for large-scale solar energy development. These include:

- proximity to the existing transmission infrastructure
- available connection capacity
- level of solar radiation
- distance to major towns, cities or other major energy users
- proximity to major roads and transport infrastructure
- size and shape of land parcels
- development restrictions including land use zoning and proximity to regional cities.

These considerations limit the areas that are suitable for large-scale solar development.

Applicants must also consider other environmental issues and land use conflicts when selecting a site, such as the agricultural productivity of the land, visibility and topography of the site and biodiversity values.

Variations in topography can reduce the usability of land and minimise the efficiency of energy production (by increasing the potential for panels to overshadow each other). Higher gradients will also increase construction costs, create access challenges and increase the potential for erosion and sedimentation unless substantial controls are implemented.

#### 4. Site selection

As shown in **Figure 2**, site selection factors often compete with each other. With the growing demand for solar energy, it is becoming difficult to select sites that do not present some challenges. Consequently, the site selection process should avoid impacts as far as possible while striking an appropriate balance between competing environmental and social factors.

Applicants should undertake a ‘constraints mapping’ exercise that is informed by early engagement with local communities and councils. This should provide an overview of the key environmental and land use constraints on and around the project site.

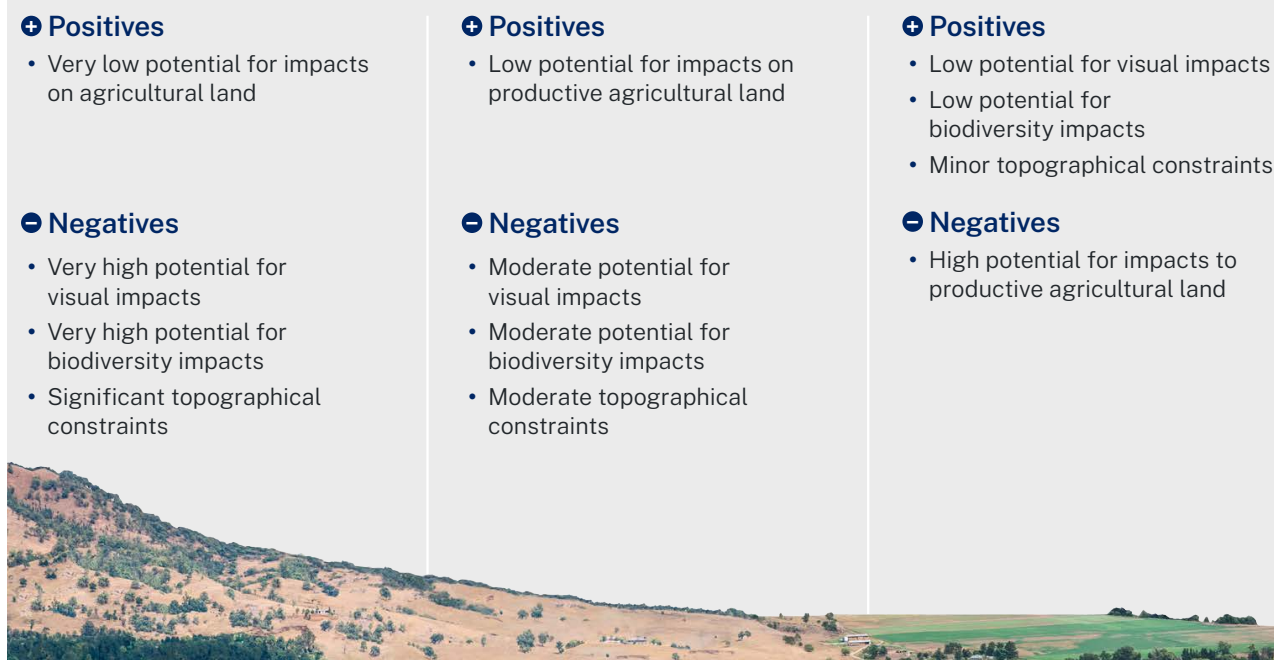
The constraints mapping exercise should include, but not necessarily be limited to:

- nearby residences (including those subject to any impact agreements – see **Appendix B**)
- rural villages and urban land
- important agricultural land and soil capability (LSC) class of subject land and surrounding land

- indigenous and non-indigenous heritage items and places of significance
- threatened species, native vegetation (including grasses) and endangered ecological communities
- watercourses
- flood prone and bushfire prone land
- existing infrastructure, including transmission infrastructure, airports, and roads
- existing and approved solar energy developments in the area
- land use zoning
- view lines of particular significance
- existing potential visual screening.

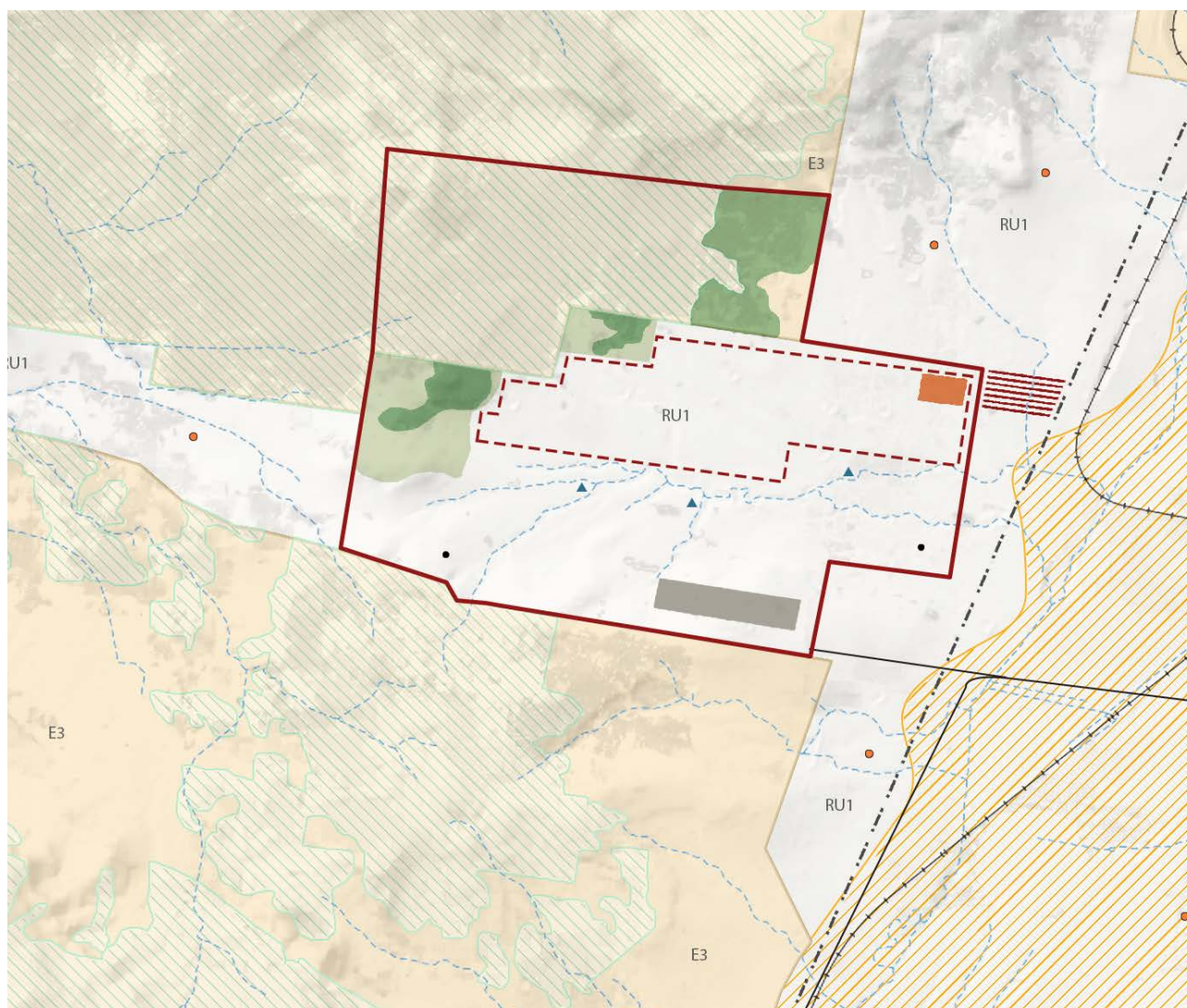
A final version of the constraints map, like that shown in **Figure 3**, should be included in the EIS.

**Figure 2: Site selection considerations**



#### 4. Site selection

**Figure 3: Constraints map**



#### Large-Scale Solar Energy Guideline

Sample Map

#### Legend

##### Dwellings

- Associated Dwelling
- Non Associated Dwelling

##### Items

- ▲ AHIMS
- Water Corridor
- Road
- Railway
- Transmission Line

##### Project

- Project Area
- - - Indicative Development Footprint
- Construction Compound
- Sub Station
- Transmission Line Corridor

##### Land

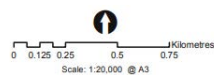
- Class 3 Agricultural Land
- Environmentally Sensitive Land

##### Land Zoning

- E3 - Environmental Management
- RU1 - Primary Production

##### Vegetation

- Native Woodland
- Derived Native Grassland





# 5

## Assessment issues and requirements



## 5. Assessment issues and requirements

This section highlights some of the common assessment issues for large-scale solar energy development and detailed requirements for issues including visual amenity impacts, glint and glare, agricultural land use conflict, rehabilitation and decommissioning and waste management. This section also includes key principles that should be considered in site selection, siting, and detailed assessment of projects.

### 5.1 Landscape and visual impacts

#### 5.1.1 Introduction

Large-scale solar energy development can contrast with existing rural areas and landscapes. Despite this, the potential for landscape and visual impacts in many settings is relatively low, especially when compared to other types of energy development (such as wind energy). This is particularly the case when the site and surrounding areas are relatively flat.

This section should be read in conjunction with the supporting *Technical supplement for landscape and visual impact assessment*.

#### 5.1.2 Key principles

Consent authorities will consider the following principles in determining the significance of impacts and any mitigation measures to reduce visual impacts.

##### Visual amenity principles

1. The baseline character of the landscape must be determined through engagement with the community.
2. Applicants must consider landscape character and visual impacts early in the site selection and design process to minimise impacts and conflicts where possible.
3. Solar energy projects should be sited and designed to avoid areas with topographical constraints that would increase the visibility of a development.
4. Where solar energy projects are likely to result in moderate or high visual impacts, mitigation strategies must be adopted to reduce or manage impacts.

## 5. Assessment issues and requirements

### 5.1.3 Assessment

The applicant must prepare a landscape and visual impact assessment in accordance with the technical supplement which is described briefly below.

#### Landscape character assessment

The purpose of undertaking a landscape character assessment is to understand the sensitivities of the landscape and to help determine the overall impact of a project on an area's character and sense of place.

This should be informed by a baseline analysis that establishes the existing character of the area and its sensitivity. It is important that the baseline analysis is prepared in consultation with the community, local council and affected landholders to ensure that landscape values and characteristics are accurately identified.

The impact of the proposal on the landscape should be determined by evaluating the sensitivity of the landscape and the magnitude of the project's effects in that area.



#### Visual impact assessment

An assessment must be completed for all viewpoints that would have the potential to experience moderate or high impacts. The technical supplement includes a preliminary assessment tool that identifies these viewpoints based on distance from the project and the relative height difference.

The overall visual impact for each viewpoint must be determined by combining the visual magnitude of the proposed solar energy development and the visual sensitivity of the viewpoint, using the tools available in the technical supplement.

These tools consider factors such as:

- a view from a residence is more sensitive to change than from a local road where views are more intermittent and less frequent
- a view from a rural residence is more sensitive if it is from principal living spaces and the front and rear of the dwelling than from other areas
- a view is more sensitive to change if it has higher scenic qualities and more valued landscape features
- a distant solar energy development would have a lesser magnitude than one closer
- magnitude is likely to be higher from areas overlooking a solar array as more of the project would be visible than if the viewer were at a similar elevation.

Visual impacts must be assigned a rating from very low to high having regard to these considerations. Applicants must seek to avoid high impacts (unless the impacts can be justified) and ensure effective mitigation is provided for moderate impacts such as vegetation screening.

The technical supplement sets out a range of visual impact examples.



5. Assessment issues and requirements

## 5.2 Agricultural land use

### 5.2.1 Introduction

Agricultural land in NSW can be desirable for the development of large-scale solar energy projects. This is because:

- agricultural land is often flat, which reduces the scale and likelihood of visual impacts
- agricultural land is often cleared of vegetation, which limits any biodiversity impacts
- large-scale solar energy projects require large portions of contiguous land (approximately 500 ha on average) comparative to other types of industrial development
- solar energy development is permissible on land zoned for agricultural and rural land uses

Despite these factors, the cumulative risk to agricultural land and productivity because of large-scale solar development is very low. The Australian Energy Market Operator estimates that NSW will need approximately 20,000 MW of large-scale solar generation by 2050. This would require approximately 40,000 ha of land or only 0.06% of rural land in NSW. Even in the highly unlikely scenario that all of NSW's solar generation were located on important agricultural land (this land covers around 13.8% of the state and is 6 to 7 times more agriculturally productive than the remaining 86.2% of the state) only 0.4% of this land would be required.

While the cumulative risk to both rural land and important agricultural land is relatively low, it is important to balance the need for renewable energy with the need to safeguard important agricultural land for food and fibre production and to ensure that any use of this land would not have a significant impact on the local and regional agricultural industry.

### Agricultural land mapping

LSC mapping classifies land into 8 classes based on the agricultural practices that could be sustained on the land including ease of management and risk of degradation. The limitations to agricultural use are determined by factors such as soil properties and climate.

Class 1 represents land capable of sustaining most land uses including those that have a high impact on the soil (such as regular cultivation), while Class 8 represents land that can only sustain very low impact land uses (such as nature conservation). The different LSC classes are described in the Office of Environment and Heritage's [Land and Soil Capability Scheme \(PDF 1,390 KB\)](#) and can be viewed on the NSW Government's [SEED portal](#).

BSAL is land with high quality soil and water resources capable of sustaining high levels of productivity. BSAL data can be downloaded from the [department's website](#).

### Co-location of large-scale solar development and agriculture

Large-scale solar energy development and agricultural practices can work and exist together to benefit both landholders and solar development applicants.

There are many examples of co-location within Australia and internationally.<sup>10</sup> Examples of activities that support co-location include sheep grazing, beekeeping and/or horticultural activities.<sup>11</sup> Solar panels can offer shade for sheep, protection from the elements and green pasture during droughts.<sup>12</sup>

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<sup>10</sup> Clean Energy Council, March 2021, Australian Guide to Agrisolar for Large-Scale Solar, p. 2.

<sup>11</sup> Clean Energy Council, March 2021, Australian Guide to Agrisolar for Large-Scale Solar, p. 6-7.

<sup>12</sup> Clean Energy Council, March 2021, Australian Guide to Agrisolar for Large-Scale Solar, p. 8.

5. Assessment issues and requirements

## 5.2.2 Key principles

### Agricultural land use principles

1. Applicants should consider the agricultural capability of the land during the site selection process.
2. Applicants should avoid siting solar energy projects on important agricultural land as far as possible.
3. Agricultural assessment should be proportionate to the quality of the land and the likely impacts of a project.
4. Mitigation strategies should be adopted to ensure that any significant impacts on agricultural land are minimised.

## 5.2.3 Agricultural impact assessment

An agricultural impact assessment may be required for a large-scale solar energy project. **Appendix A** provides detailed guidance to assist applicants to determine the level and content of any agricultural assessment that may be required.

The purpose of an assessment is to ensure that applicants, communities and consent authorities have a detailed understanding of:

- the agricultural capability and productivity of land subject to the project site
- potential impacts of the solar energy project on agricultural land and associated industries
- the ways in which potential impacts may be mitigated.

If a large-scale solar energy project is located on or adjacent to important agricultural land, or located on moderate capability land (LSC class 4), the applicant must verify the agricultural quality and capability of the land. They should then use the results of this verification process (which includes completion of a soil survey) to design the layout of their project and avoid impacts on productive land.

Once the capability of the land is verified, applicants may be required to undertake an assessment of the proposed layout. The triggers for, and level of assessment required, are summarised in **Table 1** and explained in further detail in **Appendix A**.

**Table 1: Levels of agricultural impact assessment**

Project location	Level of assessment	Content of assessment
Located adjacent to rural zoned land	Level 1 – basic	Ensure that applicants, in consultation with landholders, identify and consider potential impacts on immediately adjacent agricultural land.
Located on rural zoned land verified as LSC class 4	Level 2 – reduced	Consider impacts and conflicts with the agricultural land subject to the project site.
Located on rural zoned land verified as LSC class 1-3	Level 3 – detailed	Provide a detailed justification for the project, include an assessment of whether the project would significantly impact the local or regional agricultural industry.
Other scenarios	No assessment required	



5. Assessment issues and requirements

## 5.3 Infrastructure contributions, benefit sharing and private agreements

### 5.3.1 Infrastructure contributions

Local infrastructure contributions are collected by councils to help fund local infrastructure needs resulting from development including stormwater drainage, traffic management and community facilities.

Large-scale solar energy development typically has limited impacts on local infrastructure with the exception of very specific impacts such as the requirement for road upgrades to facilitate site access. Specific impacts of this nature should be addressed through conditions of development consent rather than through local contribution mechanisms or planning agreements.

Notwithstanding, a local contribution mechanism or planning agreement can be used if there is a link between the development and the infrastructure to be funded.

### 5.3.2 Benefit sharing

Large-scale solar energy development has significant benefits for the state of NSW including reduced reliance on fossil fuel, reduced air quality emissions, and ensuring a secure and affordable power supply.

However, many of these benefits are not directly realised by the local and regional communities that host and are impacted by solar energy development. Solar infrastructure, especially when it is large scale, can result in changes to the local landscape and community that are difficult to foresee and plan for.

Sharing the financial and other benefits of a project can assist in building community support by ensuring that the project delivers positive, tangible and long term social and economic outcomes for the local community.

Consequently, the NSW Government strongly supports benefit sharing programs, and will continue to investigate how benefits could be better coordinated for communities.

However, benefit sharing programs are voluntary and there is no scheme requiring these programs to be implemented for major projects under the NSW planning system. It is up to applicants to design their own programs and/or enter into planning agreements with local councils to fund community programs and projects. The details of any benefit sharing program should be included in the EIS or be provided during the department's assessment process.

Irrespective of how the funds are administered, benefits sharing programs should:

- be informed by consultation with the community or community representatives
- produce outcomes that align with the general values and priorities of the public
- have a positive, lasting and meaningful impact for the local community and protect the overall public interest
- be proportionate to the scale of the project and the level of change experienced by the community
- include public benefits that are not wholly unrelated to the development.

Community benefit sharing involves initiatives that benefit the community as a whole, not individual landowners. If the consent authority finds that a development would have significant impacts on a landholder, it will ensure there are appropriate measures in place to deal with these issues in the conditions of consent. These might include the requirement for vegetation screening or amendments to the design of a project.

If benefit sharing will be administered through a planning agreement, that planning agreement must be prepared in accordance with the department's [Practice Note on Planning Agreements](#) (February 2021, or latest version).

As a general guide, the total funding for benefit sharing (including planning agreements and any other programs facilitated by the applicant) should be between \$200 and \$300 per megawatt per annum (indexed to CPI) over the life of the development (i.e. until the project is decommissioned).

## 5. Assessment issues and requirements

A portion of these payments may be made upfront or brought forward to provide capital funding for larger projects and initiatives. In these circumstances, the funding must be tied to a project and should consider the time value of money (i.e. a sum of money paid now has more value than the same sum paid at a future date).

The total funding for benefit sharing must not include the cost of private agreements with landowners to either host infrastructure or manage impacts from the development.

Appropriate projects and initiatives for inclusion in a benefit sharing program might include:

- recurrent costs of infrastructure, services or facilities
- additional or better-quality open spaces, public facilities or infrastructure including upgrades to local parks, libraries, galleries, community centres, showgrounds, museums, active transport infrastructure
- sponsorship of community events (fundraising events, local produce markets, nature walks, community clean-up events, gardening days) or groups (local sporting clubs, biodiversity volunteering groups, community gardens)
- promotion of available employment opportunities including managing an online register where local contractors and suppliers can be updated on upcoming contract opportunities
- training programs for local community members for employment opportunities in maintenance, operation and community liaison aspects of projects
- initiatives delivered in partnership with local organisations including scholarship programs to enable local students to complete courses in specific fields (i.e. engineering, project management)
- installation or funding of installation for residential solar panels or solar PV facilities for neighbourhood community facilities
- offering neighbours and/or wider community a share in the equity of a project or other co-ownership arrangements.

Further examples of benefit-sharing schemes and ways to design these programs are outlined by the Clean Energy Council in [A Guide to Benefit Sharing Options for Renewable Energy Projects \(PDF 3,641 KB\)](#).

### 5.3.3 Private agreements

The two most common forms of private commercial agreements are described briefly below. Further information, including advice for landholders, and can be found in **Appendix B**.

#### Host Agreements

The planning system allows applicants to enter into agreements with 'host' landholders who are willing to have project infrastructure located on their land. These agreements are essentially commercial leases and should set out the terms to enable the applicant or project owner to install, operate and maintain the project infrastructure as well as arrangements for decommissioning and rehabilitation of the project infrastructure.

#### Impact Agreements

Large-scale renewable energy projects may significantly impact some neighbours, and the planning system allows for agreements to be negotiated to manage and mitigate these impacts. For example, impact agreements are commonly negotiated to provide for the implementation of landscaping or screening to mitigate high visual impacts from a project.

#### Assessment Requirements

Where an agreement is in place between an applicant and a landholder/s, the affected residence will be considered an 'associated' residence in the assessment if it relates to the relevant impact/s.

Where an agreement is not in place between an applicant and a landholder/s, the affected residence should be identified as 'non-associated' in the EIS (see **Figure 3** for an example) as it relates to the relevant impact/s. Applicants should also identify the nature, extent and duration of any impacts covered by way of an agreement and other relevant information including the project elements covered by the agreement and relevant phases to which it relates (construction, operation and decommissioning). Applicants do not need to disclose any commercial terms of these agreements.

5. Assessment issues and requirements

## 5.4 Waste management and circular design

### 5.4.1 Introduction

Solar energy projects can generate different waste streams throughout the various phases of their lifecycle. Waste is typically minimal during the operation of a solar energy project. However, large volumes of waste may be generated during the construction period and again during the decommissioning phase. Waste generated during the construction of a solar energy project will typically comprise of cardboard packaging, wooden pallets and plastic wrapping associated with the PV panels. Most of this waste is likely to be classified as general solid waste (non-putrescible) and has the potential for recovery through reuse and/or recycling.

Waste generated throughout the operation of a solar energy project is typically negligible, except for waste generated from repair and maintenance activities.

When a solar energy project is decommissioned, a large amount of waste can be generated in association with the discarding of infrastructure, including PV panels. A typical PV panel and its associated infrastructure is comprised of glass, copper cabling, aluminium framing, silicon wafers, silver and other materials.

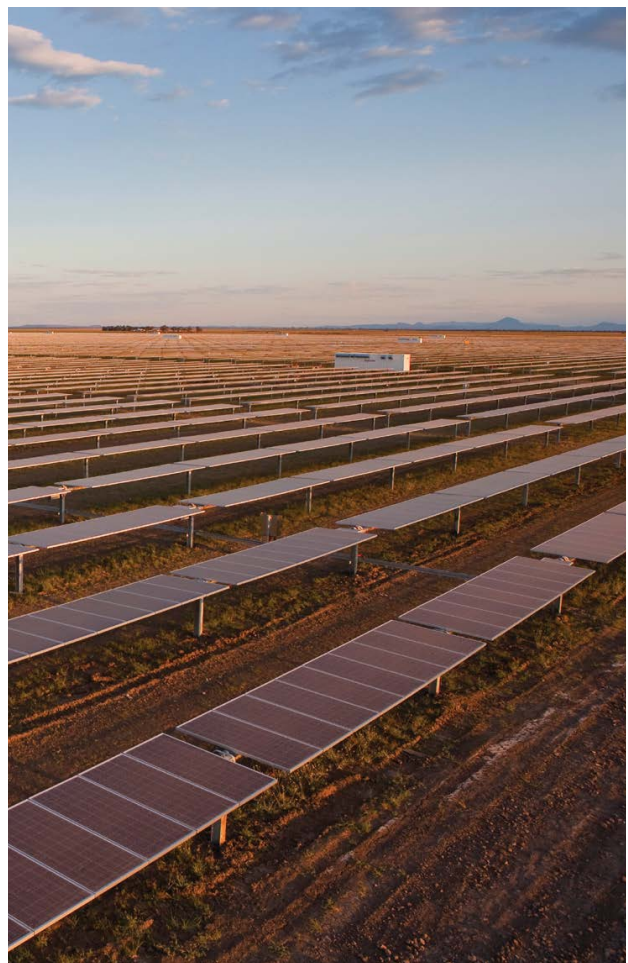
The current volume of PV panel waste from large-scale solar energy projects is not significant but is expected to grow over the next few decades. The entire solar industry (including household solar energy systems) currently generates less than 2,000 tonnes of solar panel waste per year. By 2025, solar energy systems in NSW are anticipated to generate approximately 3,000–10,000 tonnes of waste and this is expected to grow to 34,000–63,000 tonnes per year by 2035.

The NSW Government is committed to reducing waste to landfill and has created a \$10 million [Circular Solar Fund](#) which supports the adoption of technologies to manage end of life solar waste and a transition to a circular economy.

### 5.4.2 Key principles

#### Waste management principles

1. Construction waste from large-scale solar energy projects must be minimised and the use of reusable and recyclable materials should be prioritised where possible.
2. Impacts on local waste management facilities must be minimised as far as practicable during construction, operation and decommissioning.
3. Recycling of photovoltaic panels and associated equipment should be prioritised and maximised as far as possible to avoid landfill.



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Assessment issues and requirements

### 5.4.3 Assessment

Applicants should clearly demonstrate how waste will be minimised at all stages of the development and how reuse and recycling will be optimised.

The EIS must include:

- identification of waste types (including the appropriate waste classification) and estimates of waste expected to be generated at each stage of the project
- identification of end markets for waste materials generated at each stage of the project
- evidence from local councils or facilities that the identified waste classifications and volume can be accepted at the appropriate stage of the project's life cycle
- consideration of circular design principles and strategies to mitigate impacts and reduce waste generation throughout all stages of the project (such as using recycled, reusable and low-impact raw materials where possible)
- end-of-life reuse, refurbishment and recycling strategies for PV panels and associated equipment that maximise high recovery methods.

The applicant should also consider appropriate mitigation measures that include:

- selecting manufacturers, distributors and installers of PV panels that are members of relevant product stewardship schemes
- selecting manufacturers and distributors of PV panels and associated infrastructure that minimise packaging and/or maximise the recyclable components of packaging
- separating waste streams on site prior to transport to waste management facilities
- ensuring all recyclable materials are sent to the appropriate recycling facilities and minimising waste sent to landfill
- consulting with local councils to ensure that impacts on local waste management facilities are minimised as far as practicable
- developing and implementing strategies that prioritise and maximise waste avoidance and re-use, including exploration of 'second-life' options
- selecting waste management providers that specialise in recycling end-of-life PV panels and associated infrastructure.

## 5.5 Decommissioning and rehabilitation

### 5.5.1 Introduction

The operational life of a large-scale energy project is likely to range between 20 to 30 years.

Large-scale solar energy projects have the potential to operate for a long period of time if solar panels are refurbished regularly or upgraded over time.

In most circumstances, the refurbishment of solar panels and infrastructure will not require a new DA or a modification to the existing consent, as refurbishment may be authorised by the terms of the existing consent.

Alternatively, an applicant may choose to cease operation of a large-scale solar energy project and decommission and rehabilitate the project site.

Decommissioning involves dismantling and removing solar panels, structures and ancillary infrastructure (cables, inverters, fencing) from the site and recycling, reusing or disposing materials and waste products, and returning the site to its pre-existing use and LSC Class. It also involves disconnecting the development from the electricity network.

The owner or operator of a solar energy project should be responsible for decommissioning and rehabilitation, and this should be reflected in a host agreement with the landholder. This agreement may also prescribe assurances to fund decommissioning, including ongoing evidence that the applicant has the capacity to fund decommissioning activities. See **Appendix B** for information regarding host agreements.

If an applicant or landholder fails to meet the decommissioning and rehabilitation obligations prescribed by the relevant development consent, the department can use its enforcement powers under the EP&A Act to address any breaches of the consent conditions.



Assessment issues and requirements

### 5.5.2 Key principles

#### Decommissioning and rehabilitation principles

1. The land on which a large-scale solar energy project and supporting infrastructure is developed must be returned to pre-existing use if the project is decommissioned.
2. If operations cease, infrastructure (including underground infrastructure) should be removed unless there is significant justification for retaining it.
3. Land must be rehabilitated and restored to pre-existing use, including the pre-existing LSC class, if previously used for agricultural purposes.
4. The owner or operator of a solar energy project should be responsible for decommissioning and rehabilitation, and this should be reflected in an agreement with the host landholder.

### 5.5.3 Assessment

Applicants must identify the decommissioning and rehabilitation activities that will take place and address all relevant issues for decommissioning and rehabilitation in the project EIS.

This may include dust and noise impacts from earthwork activities and vehicles, traffic generation and/or traffic disruptions and risks to biosecurity, particularly related to pests, diseases and weeds.

The consent authority should impose conditions of consent to ensure that the above principles are met. Because the decommissioning and rehabilitation of large-scale solar energy projects is relatively straightforward, approval conditions should be outcomes-based and not include post approval requirements such as management plans.

It is the NSW Government's policy that financial assurances should not be required by conditions of consent, and any financial assurances should be dealt with in commercial arrangements outside of the planning system.



## 5.6 Glint and glare

### 5.6.1 Introduction

Glint (a momentary flash of light) and glare (a continuous, excessive brightness) can affect people and land uses near large-scale solar energy developments including residents, road users, rail operators and airport operations.

However, significant glint and glare impacts are uncommon with large-scale solar energy developments for several reasons. Firstly, solar panels are designed to absorb light and typically reflect less than 2% of incoming sunlight<sup>13</sup>. Secondly, glint and glare typically occur for short periods of time and require very specific geometric and atmospheric conditions. Lastly, many solar energy projects are now fitted with tracking panels that can be adjusted to avoid or minimise the geometric conditions required.

While glint and glare impacts can be relatively uncommon, it is important to model and assess these impacts to ensure any potential significant impact is avoided or mitigated appropriately.

### 5.6.2 Key principles

#### Glint and glare principles

1. Solar panels should be sited to reduce the likely impacts of glint and glare.
2. Solar panels and other infrastructure should be constructed of materials and/or treated to minimise glint and glare.
3. If a large scale-solar energy development is likely to exceed the relevant criteria for glare and standards for glint, mitigation strategies must be adopted to reduce impacts.

### 5.6.3 Assessment

A glint and glare assessment should be undertaken in accordance with the requirements in **Appendix C**. This assessment must demonstrate that glint and glare would not pose a significant risk to motorists or pilots and that nuisance from glare is minimised for residential locations in accordance with the objectives outlined in **Table 2**.

**Table 2: Impact rating and performance objectives for glare impacts to residential dwellings**

High glare impact	Moderate glare impact	Low glare impact
> 30 minutes per day > 30 hours per year	< 30 minutes & > 10 minutes per day < 30 hours & > 10 hours per year	< 10 minutes per day < 10 hours per year
Significant amount of glare that should be avoided.	Implement mitigation measures to reduce impacts as far as practicable.	No mitigation required.

<sup>13</sup> Spaven Consulting 2011, Solar Photovoltaic Energy Facilities: Assessment of Potential for Impact of Aviation, Report No.10/344/RPS/1.

Assessment issues and requirements

## 5.7 Other assessment issues

Other matters may be relevant to a project and require careful consideration. These matters are outlined in **Table 3**.

**Table 3: Other assessments issues**

<b>Biodiversity</b>	<p>Where the proposed site contains native vegetation, habitat of threatened species or ecological communities, and requires clearing, an assessment must be undertaken in accordance with the <i>Biodiversity Conservation Act 2016</i>, <a href="#">the Biodiversity Assessment Method</a> and documented in a biodiversity development assessment report (BDAR).</p> <p>The Planning Secretary has the power to waive the requirement for a BDAR if an applicant can demonstrate that the proposed development is not likely to have a significant impact on biodiversity values.</p> <p>Applicants are expected to demonstrate that they have applied principles of avoidance, minimisation and mitigation of impacts in project design.</p>
<b>Traffic and transport</b>	<p>Applicants should consider whether the local and classified road network can accommodate the traffic generated by the construction of the solar energy project, having regard to any advice from relevant road authorities.</p> <p>Applicants should provide a clear list of road upgrades required and an assessment of the relevant impacts of these upgrades, having regard to advice from relevant road authorities. Applicants must identify whether the road upgrades require landowner's consent.</p>
<b>Water management</b>	<p>Surface water-related impacts, such as flooding, discharge/run-off and erosion, must be assessed. Appropriate mitigation measures, such as sediment controls, must be proposed where warranted.</p> <p>Applicants should consult with landholders regarding potential surface-water related impacts of the project on neighbouring properties and any mitigation measures.</p> <p>Any assessment of surface water-related impacts must be informed by a soil survey that considers the potential for erosion.</p> <p>If there is any water take associated with the project, the applicant should identify the source of water (both potable and non-potable) and may need to acquire water access licences if the project is approved.</p>
<b>Noise and vibration</b>	<p>Construction noise impacts should be assessed in accordance with the <a href="#">Interim Construction Noise Guideline</a> and operational noise impacts in accordance with the NSW <a href="#">Noise Policy for Industry</a>.</p>
<b>Air quality</b>	<p>Dust suppression measures that will be used during construction and operation, such as water carts during land preparation, temporary wind fences and re-vegetation of disturbed areas, should be considered.</p>

Assessment issues and requirements

<b>Social and economic impacts</b>	A social impact assessment is required for all state significant projects and must be undertaken in accordance with the department's <a href="#">Social Impact Assessment Guideline for State Significant Projects (PDF 2,181 KB)</a> . The assessment will include both positive and negative impacts of the proposed development on potentially affected people and groups, including how the impacts are distributed. This includes workforce accommodation, job creation opportunities and flow-on economic impacts to local communities.
<b>Aboriginal cultural heritage</b>	<p>The loss of Aboriginal cultural heritage should be avoided. If losses cannot be avoided, impacts must be minimised.</p> <p>An assessment of the likely impacts on Aboriginal cultural heritage must be undertaken and should include consultation with the Aboriginal community undertaken in accordance with the <a href="#">Aboriginal cultural heritage consultation requirements for proponents</a> and test excavations, if required.</p>
<b>Non-Aboriginal heritage</b>	An assessment is required of the likely impacts on archaeological objects and places.
<b>Cumulative impacts</b>	Any cumulative impacts from other developments (proposed, approved and operative), especially biodiversity, socio-economic and construction traffic, must be assessed in accordance with the department's <a href="#">Cumulative Impact Assessment Guidelines for State Significant Projects (PDF 1,393 KB)</a> (July 2021, or its latest version).
<b>Regional cities</b>	<p>Where an applicant proposes a large-scale solar development within a mapped area in proximity to a regional city, the provisions within the Transport and Infrastructure SEPP should be clearly and comprehensively addressed.</p> <p>Residential and commercial developments that have been approved (but not yet commenced) should be included when identifying the surrounding urban environment.</p> <p>The applicant should consult with the relevant council and identify any land identified for future growth in strategic planning documents including local strategic planning statements and housing strategies.</p>
<b>Hazards</b>	<p>The location of solar energy infrastructure should avoid any land subject to identified natural hazards (such bushfires, flooding or land instability) and should not contribute to an increase in risk of a natural hazard.</p> <p>Any natural hazards or risks associated with the construction, operation and decommissioning of the solar energy project must be assessed. These include those associated with hazardous materials (for instance, from PV panels and battery storage), and the threat of fire spreading to a solar development or being caused by associated infrastructure such as cables, panels or transmission lines.</p> <p>If the project is located in a bushfire prone area, applicants must prepare a strategic bushfire study in accordance with the NSW Rural Fire Service's <a href="#">Planning for Bush Fire Protection</a>.</p>



Assessment issues and requirements

<b>Heat island</b>	Where a solar energy project is located adjacent to a horticultural or cropping activity, the solar array should be setback from the property boundary by at least 30m to mitigate any heat island effect.
<b>Batteries</b>	If the project includes battery energy storage that has a capacity of more than 30 MW, the applicant must undertake a preliminary hazard analysis in accordance with <a href="#">Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning (PDF 367 KB)</a> , <a href="#">Hazardous Industry Planning Advisory Paper No 6 – Hazard Analysis (PDF 525 KB)</a> and <a href="#">Multi-level Risk Assessment (PDF 624 KB)</a> .
<b>Health</b>	Applicants should consider the power frequency and electric and magnetic field exposure guidelines <sup>14</sup> referenced by the Australian Radiation Protection and Nuclear Safety Agency.
<b>Public interest</b>	Applicants should consider an analysis of the public interest, including the public interest in renewable energy, the objects of the EP&A Act and the principles of ecologically sustainable development.
<b>Strategic context</b>	Applicants should consider whether the project is consistent with local or state planning strategies, and government policies such as climate change and energy policies, including the capability of the project to contribute to energy security and reliability <sup>15</sup> .

<sup>14</sup> ICNIRP Guidelines for Limiting Exposure to Time Varying Electric and Magnetic Fields (1 Hz – 100 kHz) 2010.

<sup>15</sup> For further guidance on addressing electricity system security and reliability, proponents should see the department's publication Electricity System Security and Reliability Environmental Assessment Requirement: Guidance for proponents of State significant electricity generation projects.

# Appendix

# A

## Agricultural impact assessment requirements



# Appendix A – Agricultural impact assessment requirements

## 1. Purpose

Applicants of large-scale solar energy projects should use this appendix to determine whether an assessment of impacts on agricultural land is required. If such an assessment is required, the appendix should be used to determine the level of assessment required.

## 2. Level of assessment

Applicants are required to undertake a level of assessment that is proportionate to the agricultural capability of the land which may be affected by the project.

There are three levels of assessment:

1. basic assessment – for projects proposed on land adjacent to rural zoned land
2. reduced assessment – for projects proposed on moderate capability land
3. detailed assessment – for projects proposed on important agricultural land

To determine the level of assessment required, applicants should follow the steps outlined in **Figure 5** and described below.

### 2.1 Step 1: Identify zoning

Rural zoned land is most commonly used for primary production practices and agricultural industries. An assessment of agricultural impacts may be required if the project site or immediately adjacent land is zoned as rural land under the applicable EPI.

An assessment of impacts on agricultural land will not be required if:

- the project site is not zoned as rural land under the applicable EPI
- the project site is not adjacent to land zoned as rural land under the applicable EPI.

### 2.2 Step 2: Identify available mapping

An assessment of agricultural impacts will be required where land subject of the application and/or immediately adjacent to the project site is of moderate capability or important agricultural land.

Applicants must use available mapping datasets to identify:

- the land and soil capability (LSC) class of the project site
- whether any BSAL is present on the project site
- whether immediately adjacent land is mapped as LSC class 1–3 or BSAL.

In some cases, applicants must verify the quality and capability of the site (see Step 3 below).

### 2.3 Step 3: Site verification

Site verification is an important component of the environmental assessment process as it provides an understanding of the quality of the land and its capacity for agricultural use.

In circumstances where the subject site is located on or adjacent to land mapped as moderate capability or important agricultural land, the applicant must verify the capability of the land by analysing the soil, climate and landform features.

Soil verification is critical to ensure that applicants, communities and consent authorities have accurate and objective information about the land and soil characteristics of the project site and understand any associated limitations and hazards of the land.

Appendix A – Agricultural Impact Assessment Requirements

Site verification will assist applicants to:

- understand the biophysical features of the land including soil type, slope, landform position, acidity, salinity, drainage, rockiness and climate
- understand on-site and off-site limitations and hazards of the land including erosion, soil structure decline, soil acidification, salinity, waterlogging, shallow soils and rockiness
- consider appropriate land management strategies in light of biophysical features and hazards
- refine the siting and layout of the project, avoid impacts on productive agricultural land and manage any land limitations.

Applicants required to verify land should refer to the sections below for guidance. Site verification is not required for large-scale solar development located on poorer agricultural land, i.e. LSC classes 5–8.

### 2.3.1 Soil survey

A soil survey must be completed for all large-scale solar energy projects proposed on land mapped as moderate capability or important agricultural land.

Soil surveys provide objective, scientific and detailed information not otherwise available under mapping systems, which have been completed at a broader regional scale and are a critical component of the soil verification process.

Soil surveys should be completed at an inspection density of 1 site per 5 ha to 25 ha. This inspection density is recommended for moderately intensive uses at 'field' level and detailed project planning under the Guidelines for Surveying Soil and Land Resources (Second Edition).

In some circumstances, an inspection density of 1 site per 5 ha to 25 ha may not be appropriate and applicants can complete the soil survey at a different inspection density if they provide a clear and sufficient justification for doing so in the EIS.

Site verification and soil sampling is only required for the subject site and not for any adjoining land. In all cases, a baseline soils report, which summarises the soil survey methodology and conclusions reached, should be submitted as part of the project EIS.

The references listed in **Table 4** should be used to guide the soil survey.

**Table 4: Soil survey resources**

Activity	Guideline
Soil sampling and survey	McKenzie NJ, Grundy MJ, Webster R and Ringroase-Voase AJ (2008) Guidelines for Surveying Soil and Land Resources. Second Edition. CSIRO Publishing, Melbourne.
Classification of soil types	Isbell RF and National Committee on Soil and Terrain (2021) The Australian Soil Classification. Third Edition. CSIRO Publishing, Clayton South, VIC.
Soil physical measurements and interpretation	McKenzie N, Coughlan K and Cresswell H (eds) (2002) Soil physical measurement and interpretation for land evaluation. CSIRO Publishing, Collingwood.
Soil chemical measurements and interpretation	Rayment GE and Lyons DJ (2011) Soil chemical methods – Australasia. CSIRO Publishing, Collingwood.



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### 2.3.2 Verification of LSC class

Following completion of a soil survey, the applicant must verify the agricultural capability and LSC class of the land in accordance with the Office of Environment and Heritage's [Land and soil capability assessment scheme \(PDF 1,390 KB\)](#).

The assessment scheme uses the biophysical features of the land and soil, including landform position, slope gradient, drainage, climate, soil type and soil characteristics, to derive detailed rating tables for a range of land and soil hazards. These hazards include water erosion, wind erosion, soil structure decline, soil acidification, salinity, waterlogging, shallow soils and mass movement. This information can help support the sustainable use and management of the land and soil resources.

Where soil verification has determined that the agricultural capability of the land is inconsistent with the mapped LSC class of the land, the applicant must identify the inconsistencies and the LSC class of the land as verified. The level of assessment to be completed (see Step 4) will be determined by the verified LSC class.

### 2.4. Step 4: Determine level of assessment required

An agricultural impact assessment is required where:

- the applicant has verified the land as LSC class 1–4, or
- the project site is adjacent to rural zoned land.

The level of assessment required depends on the agricultural capability of the land and location of the project as outlined in **Figure 4** and **Table 5**.

There may be times where the applicant of a large-scale solar energy project is prepared to accept that the subject site is important agricultural land without verifying the capability as described in Step 3.

In these circumstances, the applicant must complete a level 3 detailed assessment and should be prepared to accept a condition of consent that requires the land to be returned to the mapped LSC class.

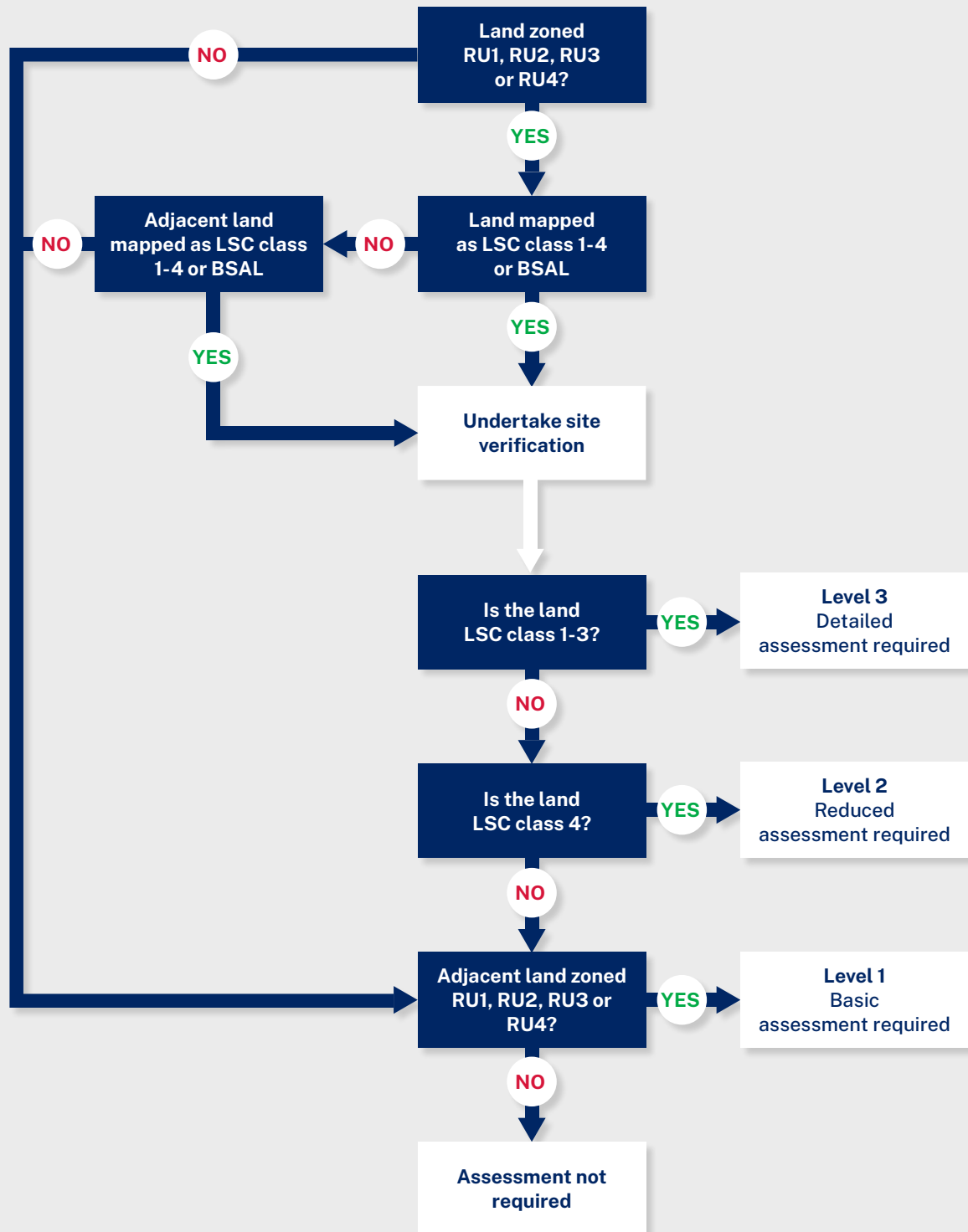
**Table 5: Level of assessment required for SSD solar energy projects**

Project location	Level of assessment
Located adjacent to rural zoned land	Level 1 – basic
Located on rural zoned land verified as LSC Class 4	Level 2 – reduced
Located on rural zoned land verified as LSC Class 1-3	Level 3 – detailed
Other scenarios	No assessment required

**Note:** To avoid doubt, the highest quality land present on the site must determine the level of assessment required.

Appendix A – Agricultural Impact Assessment Requirements

Figure 4: Determining the level of assessment required for large-scale solar energy projects





### 3. Content of assessment

If applicants are required to complete an assessment, the EIS must be prepared in accordance with the requirements detailed below. Above all, the information must be presented in a manner that is clear and easy to understand.

#### 3.1 Level 1 assessment – basic

Solar energy projects have the potential to impact neighbouring properties and landholders if not managed correctly. Applicants must consult with neighbouring landholders to understand potential impacts on immediately adjacent agricultural land and to inform strategies to mitigate these impacts. Project impacts may include disruption to existing agricultural operations, biosecurity-related risks, changes to water supply and/or fire hazard risks.

The purpose of a level 1 assessment is to ensure that applicants consider project impacts on immediately adjacent agricultural land and to encourage open and honest dialogue between applicants and owners of this land. Applicants are encouraged to consult with the local community and other rural stakeholders about the potential impacts on neighbouring agricultural land.

A level 1 assessment must:

- present LSC mapping and the results of any site verification completed to confirm land capability
- include consultation with neighbouring landholders to identify potential project impacts (if any) on immediately adjacent land
- describe project impacts (if any) on immediately adjacent land
- describe consultation undertaken
- consider measures to reduce impacts on neighbouring agricultural land.

#### 3.2 Level 2 assessment – reduced

A level 2 assessment is required where solar energy projects are proposed on moderate capability land, being land verified as LSC Class 4.

LSC class 4 land is land which has moderate to high limitations for high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise and investment.

As class 4 land can be used for productive agricultural uses such as cropping with appropriate management and technology, applicants must undertake an assessment of the key issues and potential impacts of the solar energy project on this land.

**Table 6** outlines the information required in a level 2 assessment. All information required for a level 1 assessment must also be included in a level 2 assessment.

#### 3.3 Level 3 assessment – detailed

A level 3 assessment is required where solar energy projects are proposed on land verified as LSC classes 1–3 or BSAL. This land is the state's most productive land and has the least limitations for sustaining various land uses.

Siting of solar energy infrastructure on important agricultural land, including land mapped as LSC classes 1–3 or BSAL, should generally be avoided if possible. Where it is not possible to avoid this land, the applicant must prepare a comprehensive assessment that addresses the requirements of both level 1 and level 2 assessments and includes:

- a detailed assessment of whether the project would significantly impact the local or regional agricultural industry, including production and supply chains
- justification for the project considering other alternatives which would have lesser impacts on agricultural land. Applicants must demonstrate that other project sites and siting options have been considered and state the reasons why the site and layout was chosen over alternative options
- an analysis of whether site design could be amended to reduce impacts.

Appendix A – Agricultural Impact Assessment Requirements

**Table 6: Requirements for level 2 assessment**

Assessment required	Content and form
<b>Project description</b> Describe the nature, location, intensity and duration of the project and include a map of the project area.	<ul style="list-style-type: none"> <li>• Project description</li> <li>• Location</li> <li>• Duration</li> <li>• Areas of the site that would be disturbed or temporarily removed from agricultural use</li> </ul>
<b>Regional context</b> Describe the regional context.	<ul style="list-style-type: none"> <li>• Zoning of the project site</li> <li>• Climate and rainfall</li> <li>• Regional landform</li> <li>• Regional land use including any significant agricultural industries and/or infrastructure</li> </ul>
<b>Site characteristics and land use description</b> Describe the nature and location of agricultural land with the potential to be impacted by the development. Describe the current agricultural status and productivity of the proposed development area and surrounding locality including the land capability as per Office of Environment and Heritage's (OEH) <a href="#">Land and soil capability assessment scheme (PDF 1,390 KB)</a> .	<ul style="list-style-type: none"> <li>• Describe the land subject to the project site</li> <li>• Describe existing agricultural land uses (i.e. orchards, vineyards, breeding paddocks, intensive livestock areas)</li> <li>• Describe the history of agricultural practices on the project site</li> <li>• Identify soil type, fertility, land and soil capability</li> <li>• Provide a map showing the verified LSC class of the project site</li> <li>• Provide a map showing topography of the site</li> <li>• Describe the agricultural productivity of the site</li> </ul>
<b>LUCRA assessment</b> Conduct an assessment of potential land use conflicts, including completion of an assessment in accordance with the Department of Industries' <a href="#">Land Use Conflict Risk Assessment Guide (PDF 351 KB)</a> .	<ul style="list-style-type: none"> <li>• Land use compatibility and conflicts</li> <li>• Discuss compatibility of the development with the existing land uses on the site and adjacent land (e.g. aerial spraying, dust generation and biosecurity risk) during operation and after decommissioning, with reference to the zoning provisions applying to the land</li> </ul>
<b>Impacts on agricultural land</b> Identify and describe the nature, duration and consequence of any potential impacts on agricultural land subject to the project site and in the wider region.	<ul style="list-style-type: none"> <li>• Describe project impacts on identified agricultural lands including, but not limited to, potential weeds, pests, dust, bushfire, livestock, crop production</li> <li>• Consider impacts to the agricultural productivity of the site</li> <li>• Consider project potential to permanently remove agricultural land and/or fragment or displace existing agricultural industries</li> <li>• Consider cumulative impacts of multiple solar energy projects on agriculture in the region</li> </ul>
<b>Mitigation strategies</b> Outline strategies that may be adopted to mitigate potential impacts on agricultural land and minimise land use conflict.	<ul style="list-style-type: none"> <li>• Outline and consider strategies to mitigate project impacts on agricultural land</li> <li>• Consider co-location with existing agricultural practices and investigate feasibility of agrisolar where it would result in a meaningful benefit (see Clean Energy Council's <a href="#">Australian Guide to Agrisolar for Large-Scale Solar</a>).</li> </ul>

Appendix A – Agricultural Impact Assessment Requirements

## 4. Mitigation measures

Mitigation strategies should be developed to minimise project impacts on agricultural land. The EIS should clearly identify potential project impacts on agricultural land and strategies to mitigate these impacts. Mitigation measures may include:

### Design

- locating solar panels in consultation with landholders
- designing temporary fencing and temporary access routes to minimise impacts on existing farm operations and livestock
- ensuring that access to the site does not fragment surrounding land and is of an appropriate design standard to support agricultural use
- amending project design to avoid important agricultural land
- implementing appropriate buffer zones between the project disturbance area and adjacent agricultural land.

### Construction

- establishing the ground cover of the site within 3 months of completing construction
- implementing erosion and sediment controls.

### Operation

- maintaining the ground cover with appropriate perennial species and weed management
- appropriately managing waste and pollution risks
- allowing for grazing, horticulture and biodiversity regeneration activities to continue.

Applicants are encouraged to consider guidance published by the NSW Department of Primary Industries when determining suitable mitigation measures to reduce project impacts on agricultural land. For specific guidance please refer to the following documents:

- NSW Department of Primary Industries – [Right to Farm Policy \(PDF 8,168 KB\)](#)
- NSW Department of Primary Industries – [primefact: Infrastructure proposals on rural land \(PDF 147 KB\)](#)
- NSW Department of Primary Industries – [Managing biosecurity risks in land use planning and development guide \(PDF 762 KB\)](#)
- NSW Department of Primary Industries – [Buffer Zones to Reduce Land Use Conflict with Agriculture.](#)





# Appendix

# B

## Private agreements between landholders and applicants



# Appendix B – Private agreements between landholders and applicants

## Types of agreements

At various stages of a project's life cycle, a range of private agreements may be made between landholders and applicants for various purposes related to the development. These include:

- licence agreements
- option agreements
- land purchase agreements
- lease ('host') agreements
- impact agreements (or negotiated agreements) – relating to impacts of the proposed development.

Although the planning system allows for such agreements, the consent authority does not participate in any negotiations and is not privy to the specifics of any agreed compensation. Notwithstanding, the department has identified a range of matters that applicants and landholders should consider when entering into any such agreements. Parties should obtain independent legal advice about their rights and obligations before entering into any such agreement.

### Licence agreement

A 'licence' agreement (also known as an 'access' agreement) allows the applicant, and associated parties, rights to access a landholder's property for the purposes of surveys and assessments, typically for a specified duration of time. This is usually negotiated at the initial prospecting stage to enable the applicant to determine the suitability of the site and feasibility of a project.

### Option agreement

An option agreement provides the applicant with rights to lease some or all of a landholder's property for the purposes of construction and operation of a large-scale energy project. This form of agreement allows the applicant to access the property to assess feasibility of the project site with an option to enter into a more formal lease agreement. Applicants may choose to not enter into a licence agreement and move directly to an option agreement.

Similar to an option to lease agreement, an applicant and landholder may enter into an option to buy agreement. An option to buy agreement allows the applicant to purchase the land if or when the project proceeds to a certain point, usually construction.





## Land purchase agreement

In some circumstances, an applicant may choose to offer to purchase the land subject to the proposed development. This may include instances where existing agricultural operations are likely to be severely impacted by the project.

## Lease agreements – ‘host’

A lease or host agreement is a complex long-term agreement negotiated between a project developer and landholder that places significant obligations and responsibilities on the landholder.

A large-scale solar energy project usually consists of one or more ‘host’ landholders willing to have project infrastructure located on their land. This agreement is essentially a commercial lease and should set out the terms to enable the applicant or project owner to install, operate, maintain and decommission the project infrastructure.

Landholders may also enter into agreements for land access, private transmission line easements, substations, office buildings and other items associated with a project.

## Impact agreements

Large-scale renewable energy projects may significantly impact some neighbours. The applicant and landowners can enter into agreements to manage these impacts and any exceedances of relevant assessment criteria (such as noise criteria). These types of agreements may be negotiated to provide for the implementation of a broader suite of measures, such as financial or other mitigation and management measures, usually to mitigate a high level of impact. For example, agreements are commonly negotiated to provide for the implementation of landscaping or screening to mitigate high visual impacts from a project.

## Guidance

### General advice

The department has prepared some general guidance for applicants and landholders to consider when negotiating agreements for large-scale energy projects. This guidance does not constitute legal advice and parties should obtain independent legal advice about their rights and obligations before entering into any agreement.

As a general guide, agreements should:

- be legally enforceable
- remain in force for the duration of the impacts being managed by the agreement
- provide for the transfer of obligations to any new owner of the solar energy development infrastructure if it is subsequently sold
- provide for the transfer of obligations to any new landholder if the subject property is subsequently sold
- clearly identify the scope of any impacts that are the subject of the agreement, whether identified impacts are subject to the implementation of agreed mitigation measures and who is responsible for carrying these out
- include considerations if the project is cancelled, materially delayed or the scope and scale of the project materially changes, particularly if the changes result in negative impacts on the landholder
- identify any limitations on how the landowner may use their land, including adjoining land, for the duration of the project (e.g. dust generation avoidance, grazing of stock)
- identify any compensation, costs or fees that are payable by either party in certain circumstances (e.g. rent, abatement of rent, contributions to works)
- provide for a means of resolving disputes.



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Appendix B – Private Agreements between Landholders and Applicants

Agreements should be specifically tailored to the landholder's individual circumstances and the project. Any agreement should be fair, reasonable and written in plain English. The landholder should have access to and obtain appropriately skilled legal and financial advice before entering into any agreement. The applicant should bear all reasonable costs associated with either entering into the agreement or understanding the implications of the agreement, including the landholder's costs for independent advice.

Landholders should consider whether any proposed agreement includes a confidentiality clause. Agreements should not include perceived unfair clauses or prevent a landholder from raising concerns about breaches of a consent other than those they have agreed to accept as part of the agreement. Landholders should avoid signing confidentiality agreements unless the agreement also includes clauses to manage impacts from the development.

Other landholder agreements (such as agreements for transmission line easements, easement access or road access) should also be negotiated and finalised with the landholders in a fair and reasonable manner, with appropriate consultations engaging affected landholders and neighbours in determining the final approach and routes to be taken.

Regarding the negotiation process, applicants should ensure that landholder expectations are properly managed from the outset. Applicants should be mindful of the consequences which may arise from their conduct in negotiations with landholders. They should also be mindful of the magnitude of impact on landholders associated with any changes to proposed infrastructure areas and associated neighbour compensation or host landholder offers.

Further information and guidance for landholders regarding agreements for renewable energy projects can be found at the NSW Farmer's [Renewable Energy Landholder Guide](#) and the Australian Energy Infrastructure Commissioner's [Considerations for Landholders before entering into Commercial Agreements](#).

## Advice for hosts

It is especially important for applicants to ensure that host landholders are properly informed of the implications of entering into host agreements and have a good understanding of the nature and scale of the predicted impacts of the project. This may include opportunities for the landholder to visit other operating large-scale solar energy projects and/or to meet other host landholders.

Other considerations for discussion between the applicant and the host landholder may include:

- how the project will affect any land use activities (such as agricultural practices, fire management)
- the components of the project which are the subject of the agreement such as agreed energy generation infrastructure, internal roads and other infrastructure locations (cabling, construction offices, substations, transmission lines etc)
- relevant impact predictions that may be of concern to the local community (such as visual, noise, ecological, transport, social/community, economic impacts) and identifying proposed assessment and management options
- the impacts of the project on development rights, vegetation protection and subdivision options
- the process for making changes to location and routing of project infrastructure to the landholder's property (such as access roads, cabling) and responsibilities for maintenance of such infrastructure
- the creation of any easements that may be required
- agreements for accessing any easements via a landholder's property
- provisions for ongoing monitoring (if required).

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Appendix B – Private Agreements between Landholders and Applicants

In addition to the standard legal and financial considerations, certain phases of the project may have specific impacts that should be clearly identified or negotiated with the host landholder.

For the construction phase, such considerations may include:

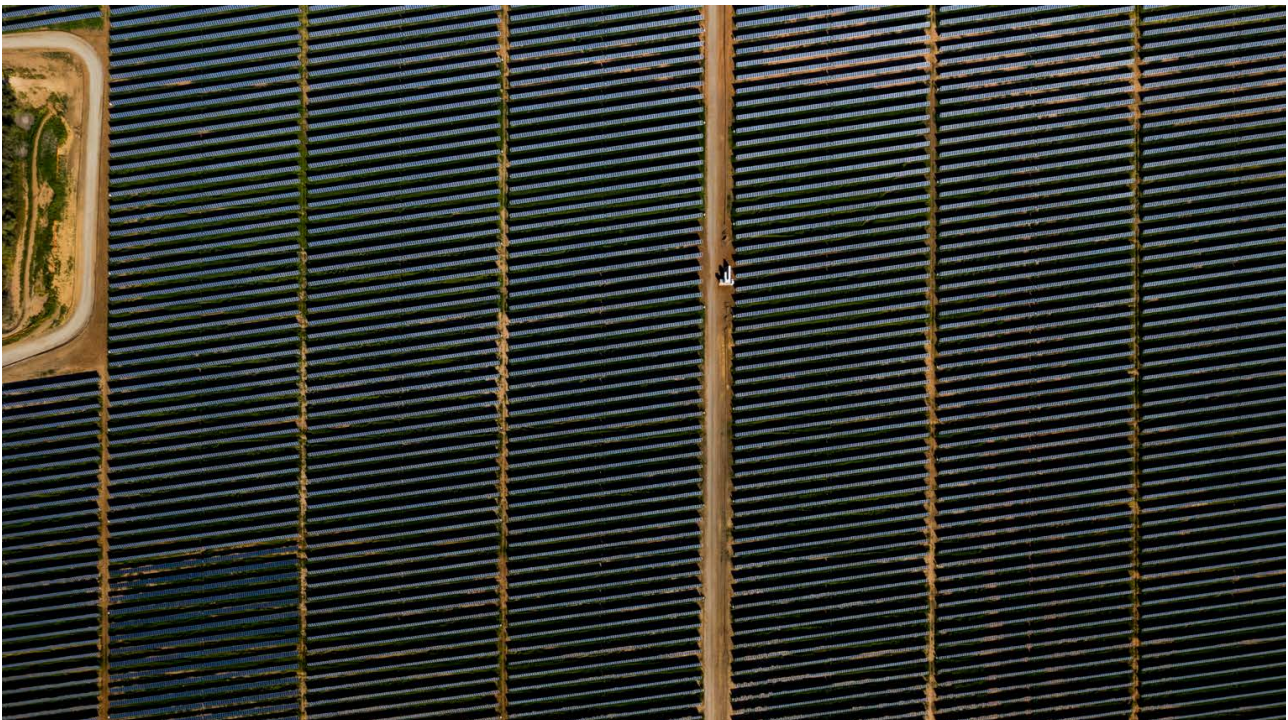
- the proposed internal road layout for the project, having regard to the potential impacts on farming operations
- the location of other infrastructure (cabling, construction offices, substations, transmission lines etc.), including any temporary infrastructure or buildings required during construction
- on-site procedures, such as biosecurity compliance requirements for contractors.

For the rehabilitation and decommissioning phase, there is a clear expectation that the project will be decommissioned at the end of its operating life (see Section 5.5).

However, it is important for the landholder to have a clear understanding of how the applicant or project owner will manage the decommissioning phase.

In relation to decommissioning, key matters for the landholder to discuss or negotiate as part of an agreement may include the following:

- scope of the decommissioning activities required (including what infrastructure will and will not be removed from the land)
- preparation of a decommissioning and rehabilitation plan and provision of the plan to the landholder
- decommissioning responsibilities of the parties
- detailed and verified estimates of the likely decommissioning costs and responsibility for paying those costs
- arrangements to ensure decommissioning funding is set aside and secured, such as a bank guarantee, bond or trust fund
- ability to audit funding security arrangements to ensure funding is in place and contributions meet the agreed requirement
- provisions for dealing with default by the project owner.





# Appendix

# C

## Glint and glare assessment



## Appendix C – Glint and glare assessment

The glint and glare assessment should represent a 'worst case' scenario that assumes no cloud cover throughout the year. The assessment should address the general requirements outlined below and in

**Table 7.** The glint and glare assessment include:

- a description of the proposed PV panels, indicating:
  - the axis of rotation and maximum tilt angle
  - the light absorption efficiency and/or refractive index values at different angles
  - whether any backtracking is proposed and the time and duration of these operations
- results of the glint and glare analysis for each assessable receiver
- identification of existing vegetation or built structures and a qualitative assessment of whether these features would eliminate or reduce the modelled impacts
- a justification for excluding any modelled glare results because they would be insignificant due to the size, position and luminance of the glare source, or high ambient luminance.
- details of strategies to either avoid or mitigate impacts including re-siting or sizing the project, altering the tracking patterns, implementing vegetation screening, or entering into agreements with landholders if all other measures have been exhausted.



Appendix C – Glint and Glare Assessment

**Table 7: Glint and glare requirements**

	Scope	Methodology	Performance objective
<b>Residential receivers</b>	<p>All residential viewpoints within 3 km of the proposed solar array that have a line of sight.</p> <p>Representative viewpoints may be used for residential receivers that are clustered together (see additional guidance in the technical supplement).</p>	<p>Analysis of the daily and yearly glare impacts in minutes.</p> <p>All residential receivers must be assessed at a height of 1.5 m above ground level.</p>	<p>See impact ratings and performance objectives for residential receivers outlined in <b>Table 2</b>.</p>
<b>Road and rail</b>	<p>All roads and rail lines within 1km of the proposed solar array.</p>	<p>Solar glare analysis to identify whether glint and glare are geometrically possible within the forward looking eyeline of motorists and rail operators.</p>	<p>If glare is geometrically possible then measures should be taken to eliminate the occurrence of glare. Alternatively, the applicant must demonstrate that glare would not significantly impede the safe operation of vehicles or the interpretation of signals and signage.</p>
<b>Aviation</b>	<p>All air traffic control towers and take off/ landing approaches to any runway or landing strip within 5km of the proposed solar array.</p>	<p>Solar glare analysis that is worst case in all scenarios accounting for all aircraft using the airport (e.g. gliders, helicopters etc).</p>	<p>Any glint and glare should be avoided unless the aerodrome operator agrees that the impact would not be material (e.g. occurs at times when there are no flights or would not pose a safety risk to airport operations).</p>







Department of Planning  
and Environment



## Large-Scale Solar Energy Guideline

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