NGH

Prepared for Elgin Energy

Submissions Report

Glanmire Solar Farm

Bathurst Regional Council LGA, Glanmire, NSW

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Acronyms and abbreviations

APZ	Asset protection zone
ARRB	Australian Road Research Board (ARRB)
BESS	Battery Energy Storage System
BOS	Biodiversity Offsets Scheme
BMP	Bushfire Management Plan
BRC	Bathurst Regional Council
BSAL	Biophysical Strategic Agricultural Land
CCC	Community Consultative Committee
CCTV	Closed-Circuit Television
CEC	Clean Energy Council
CSES	Community and Stakeholder Engagement Strategy
Cth	Commonwealth
CWORP	Central West and Orana Regional Plan
DEMP	Decommissioning environmental management plan
DPE	Department of Planning and Environment (formerly DPIE)
DSE	Dry Sheep Equivalent
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMF	Electric and Magnetic fields
EMP	Environmental Management Plan
EPA	NSW Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021* (NSW)
ERP	Emergency response plan
ESD	Ecologically Sustainable Development
ESIP	Emergency Services Information Package
FEBQ	Fire Engineering Brief Questionnaire

FRNSW	Fire and Rescue NSW
FSS	Fire Safety Study
ha	hectares
IGGAM	Interim Grasslands and other Groundcover Assessment Method
HIPAP	Hazardous Industry Planning Advisory Paper
IFSR	Initial Fire Safety Report
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
LSPS	Local Strategic Planning Statement
LUCRA	Land Use Conflict Risk Assessment
LVIA	Landscape and Visual Impact Assessment
m	metres
NIBA	National Insurance Brokers Association
OSOM	Oversized and Over Mass (vehicle)
PV	photovoltaic
QA	Quality Assurance
RAP	Registered Aboriginal Parties
RET	Australian Government Renewable Energy Target
REZ	Renewable Energy Zone
RFS	Rural Fire Services
SEARs	Secretary's Environmental Assessment Requirements
SGHAT	Solar Glare Hazard Analysis Tool
SIA	Social Impact Assessment
SSD	State Significant Development
TISEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
VPA	Voluntary Planning Agreement

Executive summary

Background

The Glanmire Solar Farm Subject is proposed to be located is Lot 141 DP1144786, in Glanmire, NSW. The site is located approximately 10km east of the centre of Bathurst. The land is zoned for rural use (RU1) with surrounding land uses predominantly agricultural. It is bounded to the north by the Great Western Highway. The terrain is generally low relief and compatible to construction and solar panel orientation to optimise solar yield. Existing 66kV infrastructure (currently operated at 11kV) is located adjacent to the site's northern boundary to connect the Project to the grid.

The Glanmire Solar Farm Environmental Impact Statement (EIS) was placed on public exhibition from Friday 18 November 2022 until Thursday 15 December 2022: https://pp.planningportal.nsw.gov.au/major-Projects/Projects/glanmire-solar-farm

The EIS set out the description of the Project, its statutory context and information required to assess its potential economic, environmental and social impacts. The EIS outlined the construction and operational parameters of a solar photovoltaic (PV) energy generation facility with an estimated capacity of approximately 60MWAC (77MWDC) including battery storage of nominally 60MW / 1 hour duration.

The Project is classified as State Significant Development (SSD) under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The key environmental issues investigated in the EIS were visual amenity and glare, biodiversity, Aboriginal heritage, land capability and compatibility, hydrology and water use, noise and vibration, socio-economic, traffic, historic heritage, hazards and risks, air quality and climate, resources and waste. Cumulative impacts were considered relevant to many of these areas.

Community and agency submissions to the EIS

During the public exhibition period, submissions from the public, public authorities and other interested parties in relation to the Project were invited.

Submissions in support most frequently cited the Project's location, specifically its compatibility with agricultural operations. The Project's contribution to climate change mitigation was the second most frequently cited issue.

Submissions opposing to the Project also most frequently cited the Project's location, specifically regarding concerns about the incompatibility of the Project with agricultural operations as well as adverse impacts on visual amenity.

Public and community group submissions:

- 6 public submissions in support of the Project.
- 131 public submissions in objection to the Project [1].
- 1 organisation submission making a comment in relation to the Project.
- 1 letter of support from local organisations and businesses.
- 5 objections from local organisations and businesses.

Council and agency submissions:

Submissions from the following agencies seeking clarifications or making comments on the Project:

[1] NGH identified that two of these were incorrectly classified as objections.

- Department of Primary Industries (DPI) Water Assessment.
- Department of Primary Industries (DPI) Agriculture.
- NSW Fire and Rescue.
- Transport for NSW (TfNSW).
- TransGrid.
- Biodiversity Conservation Division (BCD)
- Rural Fire Service.

'No comments' received from:

- Crown Lands.
- Fisheries.
- Heritage Council of NSW.
- Heritage NSW – Aboriginal cultural heritage.
- Mining Exploration and Geoscience.

One submission from Bathurst Regional Council in relation to several aspects of the Project.

The issues raised [2] in the public submissions are summarised in the table below, categorised by Department of Planning and Environment (DPE) guideline category.

[2] Each *issue raised* in public submissions is addressed in this report, not *each submission individually*. A cross reference table is provided in Appendix A so that the response to each submission can be tracked.

Table 1-1 Issues raised (and number of times raised), categorised by Department of Planning and Environment (DPE) guideline category (DPE, 2022a).

The Project itself:	• Location (29)	• Applicant (25)
Procedural concerns:	• EIS Process (24)	• Community consultation (19)
Environmental, social and economic impacts:	• Prime Agricultural Land[3] (181) • Visual Amenity (128) • Insurance Issues (48) • Socio-Economic (41) • Fire risk and other hazard (28) • Human health impact (23) • Hydrology and erosion (16) • Decommissioning, waste and resource recovery (13)	• Decommissioning, waste and resource recovery (13) • Biodiversity (8) • Traffic and transport (6) • Water supply and use (5) • Noise (2) • Climate change (1) • Aboriginal heritage value (1)
Planning Instruments	• Applicability and consistency with planning instruments (46)	
Justification	• Cost benefit (11) • Renewable contribution to Grid (7)	• Ethics and subsidies (4)
Beyond the scope	• Dissatisfaction with agencies (11) Procedural issues (4)	• Regulations (3) • Industry terms (2)

Key Project outcomes in consideration of community and agency feedback

In response to the submissions, several mitigation strategies have been strengthened to provide greater certainty. These include:

- Aboriginal cultural heritage management, during construction.
- Traffic management, during construction.
- Fire and emergency planning provisions, during operation.
- Agricultural resource protection measures including soil and rehabilitation commitments, relevant to design, construction and decommissioning.

Consultation activities have been developed to communicate these changes as well as the key issues raised in submissions and provide some further information around these and the next step for the Project's assessment and determination.

[3] Synonymous with 'important agricultural land' in this report, as defined by NSW DPI Agriculture.

Project amendments

An Amendment Report (NGH, 2023) has been prepared to address the one change proposed to be made to the Project. This relates to the battery components of the Project and would extend the onsite storage duration or the Project from one to two hours. All other Project infrastructure elements remain the same.

Overall justification for the Project

The Glanmire Solar Farm's objectives remain as set out in the EIS. They are both strategic as well as specific in terms of outcomes for the local community. They include to:

- Generate renewable energy and improve network stability.
- Provide new industries and opportunities to the Bathurst region.
- Minimise environmental impacts.
- Maximise social licence to operate.

The Project's location is well suited to this Project, given:

- Its close proximity to a grid connection point and alignment with augmentation works agreed to by Essential Energy, this reduces construction costs and largely reduces the requirement for new infrastructure required only for this Project.
- Its close proximity to a demand centre; while the energy will be distributed via the grid, its close proximity to Bathurst reduces transmission losses and the Project is equivalent to the Bathurst local government area energy requirements.
- Its close proximity to the Great Western Highway reduces local impacts during construction.
- Its scale, able to be set back from the Great Western Highway, resulting in limited visual impact and no operational noise impacts for nearby receivers.

Key concerns from the community around impacts on agricultural land and ensuring adjacent landowners and enterprises have been demonstrated to have limited relevance the Project. The Applicant has taken the opportunity to share these responses in advance of the report via:

- May 2023 newsletter - distributed to stakeholders as well as exhibited on the Elgin Energy Glanmire Solar Farm Project website.

Key support in relation to the Project from the local community has been in relation to the Project's:

- Compatibility with existing agricultural land uses.
- Alignment with Commonwealth, state and local climate policies.

In consideration of the refinements made to respond to agency and community submissions, the Project demonstrates a commitment to:

- **Best practice consultation – the establish of a Community Consultative Committee as part of the consultation process resulted in a high level of participation and greater understanding of Project assessment and mitigation matters.**
- **Best practice environmental assessment – exceeding assessment requirements in most cases.**
- **Best practice mitigation – building in all agency requests to align with their current expectations.**

The Project has also updated the onsite storage capacity from 1 hr to 2 hrs, with no resultant changes in impacts or mitigation strategies. This enhances the Project viability (addressed separately in the Glanmire Solar Farm Amendment Report; NGH 2023).

The Project has considered and addressed the principles of Ecologically Sustainable Development (ESD), which involves the effective integration of social, economic and environmental considerations in decision-making processes. With reference to the Glanmire Solar Farm:

- The precautionary principle has been adopted in the assessment of impact; all potential impacts have been considered and mitigated commensurate with risk. Where uncertainty exists, measures have been included to address the uncertainty. For example, a 'worst case' impact assessment has been undertaken to account for the uncertainty in the final impact footprint.
- Potential impacts have been assessed as likely to be localised and reversable and would not diminish the options regarding land and resource uses and nature conservation available to future generations. Importantly, the Project provides additional renewable energy that contributes to minimising the risk of climate change to current and future generations by reducing the carbon emissions produced in comparison to alternative fossil fuel electricity generation options. Opportunities to improve the soil health and landscape character have been identified.
- The Project would be decommissioned at the end of its operational life, removing all above ground infrastructure to a depth of 1000mm with the exception of the onsite substation and Essential Energy connection assets. Rehabilitation targets set in relation to site soil surveys will ensure the site is returned to its existing (or better) land capability for future generations.
- The value of the environment is made clear in the Project's protection of land capability, soil and hydrology and their broader contribution to the catchment and catchment processes. The long-term impacts have been considered and the Project commitments ensure that natural resource use and pollution risks have been fully assessed and costs would be solely borne by the Applicant.

On balance it is considered appropriate to the location and justified in terms of its ability to manage the impacts that cannot be avoided altogether.

1. Introduction

1.1. Applicant's details

The applicant proposing the Glanmire Solar Farm is Elgin Energy Pty. Ltd (henceforth, Elgin Energy). Elgin Energy's parent company was founded in 2009 following research into the German solar market and the founders' first visit to Intersolar, Europe's largest solar trade exhibition held in Munich. Their Australian office was opened in 2018. They have successfully obtained planning permission for close to 60 Projects, and they are currently developing over 1,000MW of solar and BESS projects across Victoria and New South Wales for deployment from 2024 onwards. The Applicant's details are summarised below.

Company name	Elgin Energy Pty Ltd
ABN	95 629 627 416
Address	Elgin Energy Level 10 Waterfront Place 1 Eagle Street Brisbane City Qld 4000

1.2. Location and Project outline

The Glanmire Solar Farm Subject is proposed to be located is Lot 141 DP1144786, in Glanmire, NSW. The site is located approximately 10km east of the centre of Bathurst. The land is zoned for rural use (RU1) with surrounding land uses predominantly agricultural. It is bounded to the north by the Great Western Highway. The terrain is generally low relief and compatible for a solar panel orientation that would optimise solar yield. Existing 66kV infrastructure (currently operated at 11kV) is located adjacent to the site's northern boundary to connect the Project to the grid.

The Project presented in the Environmental Impact Statement (EIS; NGH 2022) proposed the construction, operation and eventual decommissioning of a solar farm that would be connected into the electricity grid. During its operational life of approximately 40 years, it would provide electricity generation and storage, assisting the grid's transition to renewable energy sources, as fossil fuel electricity generation is reduced.

The Project as set out in the EIS would incorporate the following permanent infrastructure components:

- Ground mounted solar photovoltaic (PV) panels single axis tracking, single portrait solar arrays with a total capacity of 60MW AC (77MW DC).
- Inverters and voltage step-up transformers positioned throughout the solar arrays.
- Underground and aboveground cabling to connect the arrays to the inverters/transformer stations.
- A hybrid (AC-coupled) Battery Energy Storage System (BESS) with a power rating up to approximately 60MW; this will include additional inverters and transformers collocated at the BESS.
- A switchyard and on-site substation.
- National Energy Market compliant metering.
- Internal access tracks to enable site maintenance.
- Security fencing around the perimeter with Closed Circuit Television (CCTV).

- An operations and maintenance building.
- Development of an appropriate site access off Brewongle Lane.
- Specific areas of vegetation screen plantings.

During the construction phase, temporary facilities would include a laydown area with a secure compound, construction site offices and amenities and car and bus parking areas for construction staff. After decommissioning, most above ground infrastructure would be removed and the site returned to its existing land capability, for continued agricultural or alternative appropriate uses.

1.3. EIS preparation and exhibition

The Glanmire Solar Farm EIS was prepared in accordance with the Project-specific Secretary's Environmental Assessment Requirements (SEARs). The key environmental issues investigated in the EIS were visual amenity and glare, biodiversity, Aboriginal heritage, land capability and compatibility, hydrology and water use, noise and vibration, socio-economic, traffic, historic heritage, hazards and risks, air quality and climate, resources and waste. Cumulative impacts were considered relevant to many of these areas. Detailed safeguards and mitigation measures were developed and included as commitments of the Project.

The Glanmire Solar Farm EIS and supporting appendices were placed on public exhibition from Friday 18 November 2022 until Thursday 15 December 2022:

https://pp.planningportal.nsw.gov.au/major-Projects/Projects/glanmire-solar-farm

During this time, members of the public and government agencies were invited to review the proposal in full and make submissions.

1.4. Relationship to other activities

1.4.1. Land ownership, use and subdivision

The Applicant proposed to lease the approximately 158.6ha area required for the Project. The lease boundary will be registered on the title of Lot 141 DP1144786, under the *Real Property Act*.

A small subdivision will delineate areas for Essential Energy assets within the substation area for their ownership and management.

Creation of a short easement will be required for the grid connection line between the substation and the northern site boundary.

1.4.2. Connection to the electricity network

The Project requires connection to the electricity network. Capacity for the electricity grid to accommodate the renewable electricity generated from the Project has been confirmed and Elgin Energy has consulted with Essential Energy regarding connection requirements. This included standard feasibility studies on the network capacity and grid connection to the Raglan Zone Substation.

Essential Energy have confirmed that they may pursue opportunities to improve the local network to best utilise capacity such as the refurbishment/augmentation of existing transmission lines built for 66kV capacity within existing easements.

There is the possibility of relocation of a short section of 11kV line outside existing easements. Details of the refurbishment of the existing overhead line and any flow on effects, such are re-routing the existing 11kV line, have not been finalised by Essential Energy. The works have been characterised by Essential Energy as likely to have a low level of impacts.

Consultation with Essential Energy has verified refurbishment of this line is being sought separately under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), with Essential Energy to be the determining authority.

Elgin Energy continued proactive consultation with Essential Energy during the exhibition of the EIS in order to provide further information to the community regarding these works. They have been working with Essential Energy to carry out detailed line surveys. The GPS grid modelling with Essential Energy is progressing well with a view to approval in Q3 2023.

1.4.3. Restrictions applicable to the site

No restrictions for the site have been identified.

1.5. This report

This Submission Report has been prepared to analyse the issues raised in public and government agency submissions and explain what actions the applicant has taken since the EIS was publicly exhibited in relation to them. It includes a:

- Specific response to each issue raised in the public submissions.
- Specific response to each government agency issue raised.

The report is guided by the *State significant development guidelines – preparing a submissions report* (DPIE, 2021), and is structured as follows:

Section 2	summarises the submissions received.
Section 3	summarises the actions taken by the Applicant since public exhibition of the EIS.
Section 4	details the Applicant's responses to public and organization submissions.
Section 5	details the Applicant's responses to agencies.
Section 6	project justification.

Appendices include:

A. A submissions register, to identify where each submission received is addressed in this report. The submission ID can be used to search responses that reference this submission number. (Appendix A).
B. An updated consolidated table of mitigation measures that form commitments of the Project, pending Project approval (Appendix B).
C. Consultation relevant to this report (Appendix C).
D. Updated Biodiversity Development Assessment Report, AREA 2023 (not included in this version) (Appendix D).
E. Updated Traffic impact assessment, Amber Organisation 2023 (Appendix E).
F. Updated Soil and Agricultural Impact Assessment, Minesoils 2023 (Appendix F).

1.5.1. Related reports

An Amendment Report (NGH, 2023) has been prepared to address the one change proposed to be made to the Project. This relates to the battery components of the Project and would extend the onsite storage duration of the Project from one to two hours. All other Project infrastructure elements remain as presented in the EIS.

2. Analysis of submissions

2.1. Breakdown of submissions

Submissions were received from agencies, council, organisations and the public individuals. The total number of submissions received for the Glanmire Solar Farm by the end of the public exhibition period was 151.

Table 2-1 Submissions summary

Category
Public; 137 submissions received including: • 6 letters of support • 131 objections [4]
Organisations: • Bathurst Community Climate Action Network • Uarbry Tongy Lane Alliance Inc • Fitzsummer Pty Ltd • Glanmire Action Group • Newton Rural Pty Ltd atf Newton Rural Trust • Newton Rural Pty Ltd
Public agencies providing comments: • Department of Primary Industries (DPI) Water Assessment • Department of Primary Industries (DPI) Agriculture • NSW Fire and Rescue • Transport for NSW (TfNSW) • TransGrid • Biodiversity Conservation Division (BCD) • Rural Fire Service
Public agencies citing 'no comments': • Crown Lands • Fisheries • Heritage Council of NSW • Heritage NSW – Aboriginal cultural heritage • Mining Exploration and Geoscience
Council: • Bathurst Regional Council

[4] In its own analysis, NGH identified that two of these were incorrectly classified as objections, but they are listed here as shown on the DPE website.

2.2. Spatial distribution of public and organisation submissions

The majority of submissions were submitted by residents and organisations in the suburbs of Glanmire, Bathurst and Brewongle, then followed by Castlereagh, Eglinton, Robyn Hill and Kelso. Together, they account for almost 59% of the public submissions. Altogether 110 submissions came from within 45km of the proposed site. This accounts for about 80% of submissions. Twenty-seven submissions are from further than 20km away. The distribution can be seen in Figure 2-1.

2.3. Categorisation of issues raised

Most submissions raised more than one issue, in relation to the Project.

The issues raised in public objections are shown in Figure 2-2. The key reason cited for objecting was the location of the Project. This was linked most strongly to concerns about:

- Visual impacts.
- Agricultural impacts; reducing the capability of agricultural land and adversely affecting nearby agricultural operations. This included concern about the potential to affect the insurance premiums of these properties.

Thirty-seven separate issues were identified from the public and organisation submissions. Their prevalence is ranked (noting letters of support as well as objections), in Table 2-2.

The number of public submissions is also categorised by the Department of Planning and Environment guideline category requirements in Table 2-3. This categorisation is used in Section 4 to respond to each issue raised.

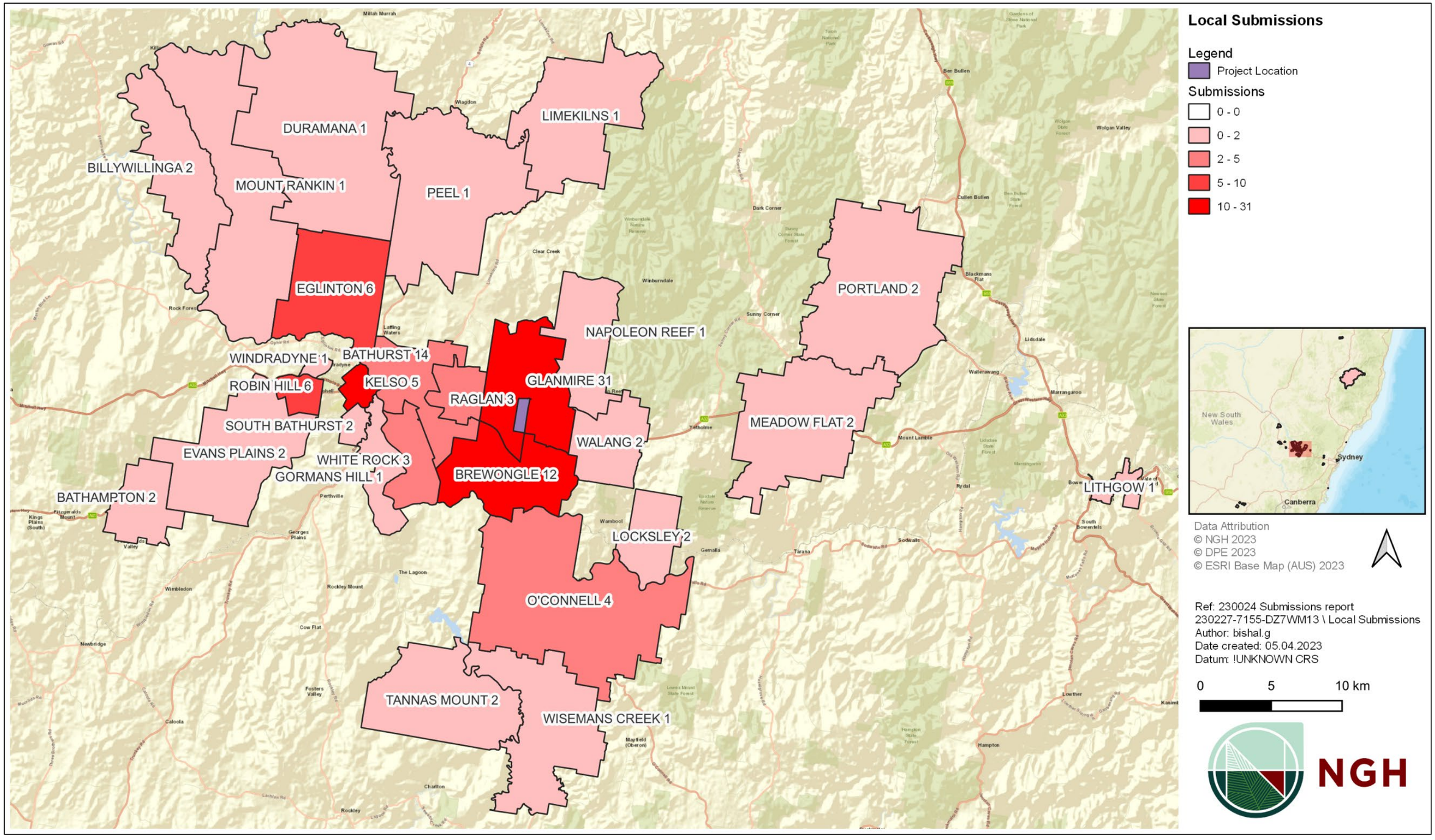


Figure 2-1 Spatial distribution of public and organisation submissions across Glanmire region

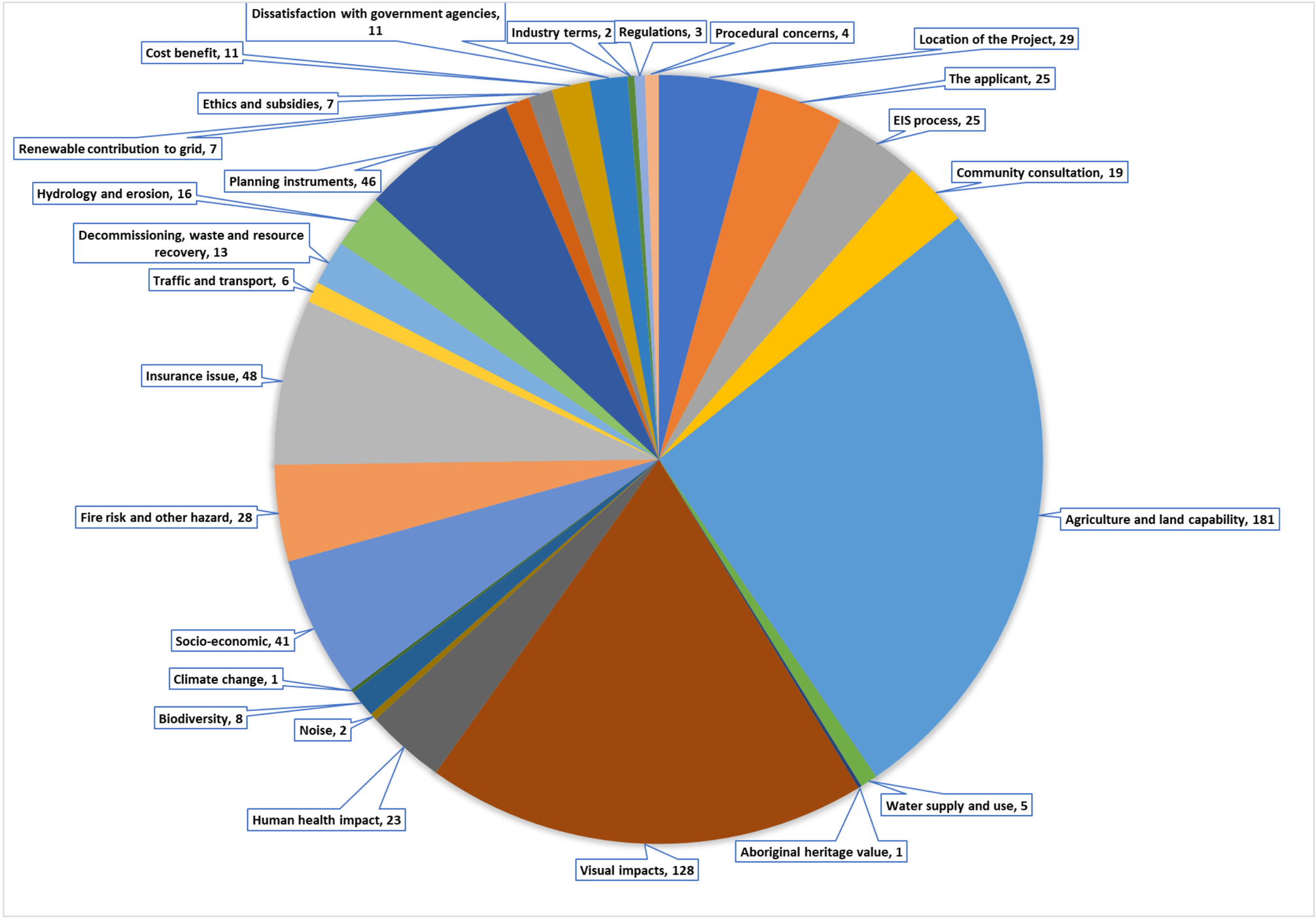


Figure 2-2 Issues raised most often in public submissions (objections).

Table 2-2 Issues raised in public submissions, ranking those most prevalent and noting those that were in support of / providing comment / objecting to the Project.

Issue	Section addressed	Total submissions	Support	Object	*Ranking (by prevalence)*
Agriculture and land capability	Section 4.3.1	181	7	174	*1.*
Visual impacts	Section 4.3.2	128	3	125	*2.*
Insurance issues	Section 4.3.3	48	1	47	*3.*
Planning instruments	Section 4.4	46		46	*4.*
Socio-economic	Section 4.3.4	41	1	40	*5.*
Location of the Project	Section 4.1.1	29	2	27	*6.*
Fire risk and other hazard	Section 4.3.5	28		28	*7.*
The Applicant	Section 4.1.2	25		25	*8.*
EIS process	Section 4.2.1	25	2	23	*9.*
Human health impact	Section 4.3.6	23		23	*10.*
Community consultation	Section 4.2.2	19	1	18	*11.*
Hydrology and erosion	Section 4.3.7	16		16	*12.*
Decommissioning, waste and resource recovery	Section 4.3.8	13	2	11	*13.*
Cost benefit	Section 4.5.1	11	4	7	*14.*
Dissatisfaction with government agencies	Section 4.6.1	11		11	*15.*
Biodiversity	Section 4.3.9	8	1	7	*16.*

Issue	Section addressed	Total submissions	Support	Object	*Ranking (by prevalence)*
Renewable contribution to grid	Section 4.5.2	7	3	4	*17.*
Ethics and subsidies	Section 4.5.3	7	1	6	*18.*
Traffic and transport	Section 4.3.10	6		6	*19.*
Water supply and use	Section 4.3.11	5	2	3	*20.*
Procedural concerns	Section 4.6.2	4		4	*21.*
Regulations	Section 4.6.3	3		3	*22.*
Industry terms	Section 4.6.4	2		2	*23.*
Noise	Section 4.3.12	2		2	*24.*
Climate change	Section 4.3.14	1		1	*25.*
Aboriginal heritage value	Section 4.3.13	1		1	*26.*
Total		690	22	812	

Table 2-3 Issues raised in public submissions, categorised by DPE guideline category.

The Project itself (refer to Section 4.1):	• Location (29)	• Applicant (25)
Procedural concerns (refer to Section 4.2):	• EIS Process (24)	• Community consultation (19)
Environmental, social and economic impacts (refer to Section 4.3):	• Prime Agricultural Land (181) • Visual Amenity (128) • Insurance Issues (48) • Socio-Economic (41) • Fire risk and other hazard (28) • Human health impact (23) • Hydrology and erosion (16) • Decommissioning, waste and resource recovery (13)	• Decommissioning, waste and resource recovery (13) • Biodiversity (8) • Traffic and transport (6) • Water supply and use (5) • Noise (2) • Climate change (1) • Aboriginal heritage value (1)
Planning Instruments(refer to Section 4.4):	• Applicability and consistency with planning instruments (46)	
Justification (refer to Section 4.5):	• Cost benefit (11) • Renewable contribution to Grid (7)	• Ethics and subsidies (4)
Beyond the scope of the Applicant to address (Section 4.6):	• Dissatisfaction with agencies (11) • Procedural issues (4)	• Regulations (3) • Industry terms (2)

3. Actions taken since exhibition

3.1. Amendments to Project

In response to the public and agency submissions, the Applicant has made five changes to the Project described and assessed in the EIS. Together these increase the rigour of mitigation strategies and improve the viability of the Project. These are summarised in Table 3-1. All updated mitigation measures are now included in Appendix B: Updated table of mitigation measures.

One change is in relation to the proposed battery infrastructure. Upon further consideration, the Applicant intends to extend the storage capacity of the onsite BESS from 1 hr to 2 hrs. This is being undertaken because the preferred Original Equipment Manufacturer no longer produces 1MWh storage. Advice was obtained from specialists that resulting physical impacts would be minor and Elgin advised DPE by email on 28 March 2023 of proposed change. The change is documented in an Amendment Report, being submitted concurrently with this Submissions Report (NGH 2023).

Table 3-1 Changes to Project since exhibition of the EIS

Description in EIS	Proposed change	Supporting material
Decommissioning commitments: 'All below-ground infrastructure would be removed to a maximum depth of 500mm. '	It is currently a standard commitment of NSW solar Projects to commit removal of all below ground infrastructure to a depth of 500mm during decommissioning. This assists the reintroduction of agricultural land uses, and the potential for cropping. However, Elgin Energy now commit to removing infrastructure to a depth of 1000mm below ground level. This be updated in the Project's commitments. This action is a direct response to community concerns regarding agricultural productivity values as well as DPI's submission.	Included in Appendix B: Updated table of mitigation measures; ID R1.1. *With the exception of permanent Essential Energy assets, all below ground infrastructure to a depth of 1000mm would be removed during decommissioning, to assist the reintroduction of agricultural land uses.*
Management plan commitments: Aboriginal cultural heritage	In addition to existing commitments, reflecting the submission from Bathurst Regional Council, an additional measure has been included to manage cultural heritage impacts and risks.	Included in Appendix B: Updated table of mitigation measures; ID AH.1.1 *A cultural heritage management plan must be prepared for the protection and management of 2 sites identified onsite. This should be prepared prior to construction and will be* *relevant for all phases of the Project.*

Description in EIS	Proposed change	Supporting material
Management plan commitments: Traffic	In addition to existing commitments, reflecting the submission from Bathurst Regional Council, an additional measure has been included to make clear the commitments in relation to traffic management.	Included in Appendix B: Updated table of mitigation measures; ID T1.1 *No access to the site should be from the south (i.e. Tarana Road and Brewongle Lane).*
Management plan commitments: Emergency planning and protocols	In addition to existing commitments, reflecting the submission from NSW Fire and Rescue, an additional measure has been included to management cultural heritage impacts and risks.	Included in Appendix B: Updated table of mitigation measures; ID BF11.1 *Prior to commissioning the solar farm, in consultation with Fire and Rescue NSW, develop:* • *Fire Safety Study developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper (HIPAP) No.21 and is to meet the operational requirements of FRNSW. It must consider the operational capability of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety independence. The FSS should consider worst-case fire scenarios including a full BESS unit fire and demonstrate no fire propagation within the facility. It is required to include an Initial Fire Safety Report (IFSR) and / or Performance-Based Design Brief / Fire Engineering Brief Questionnaire (FEBQ).* • *A comprehensive Emergency Response Plan (ERP) for the site in accordance with HIPAP No.12.* • *An Emergency Services Information Package (ESIP) in accordance with FRNSW fire safety guideline – Emergency services information package and tactical fire plans.* • *An Emergency Responders Induction Package for the site*.
BESS onsite storage of 1 hour duration	BESS onsite storage of 2 hour duration. The 1 hour components are no longer provided by the preferred supplier.	Refer to Amendment report; No discernible change to the impacts as described and assessed in the EIS, no additional mitigation proposed.

3.2. Updated assessments

To address agency comments received during the exhibition of the EIS, the following reports were updated and are appended to this report:

- Biodiversity Development Assessment Report, AREA 2023, Appendix D.
- Traffic impact assessment, Amber Organisation 2023, Appendix E.
- Soil and Agricultural Impact Assessment, Minesoils 2023, Appendix F.

The results are summarised within the agency response, Section 5.1.10 (biodiversity) and Section 5.1.6 (traffic).

In addition, the following assessments are included to support the Amendment Report (NGH 2023):

- Bushfire assessment advice, NGH 2023.
- Preliminary hazard assessment advice, NGH 2023.
- Noise impact assessment advice, Renzo Tonin 2023.

3.3. Consultation

3.3.1. Community consultation

In the EIS, the Applicant committed to update and extend the existing EIS Engagement Action Plan, so that it details engagement intentions and actions throughout the life of the Project. The EIS stated that during the exhibition period, the Community and Stakeholder Engagement Strategy (CSES) would deliver:

- A targeted, benefits and issues focused Engagement program that is conflict aware.
- Specific engagement materials and activities that directly address existing issues.

The updated strategy is included as Appendix C.

The Applicant remains committed to continuing to engage in targeted consultation with impacted near neighbours to identify appropriate and acceptable mitigation measures. Best practice approaches are being adopted (open and transparent, all Project information available and easily accessible) in order to reduce uncertainty and associated stress and anxiety, and to build trust.

It is noted that, more broadly and over the longer term, the CSES objectives are to:

- Ensure ongoing and transparent engagement with those who are directly impacted, as well as the broader community and other key stakeholders.
- Build trust and relationships with those who are directly impacted, and well as other key stakeholders.
- Deliver an agreed and clear Community Benefits Scheme through a participatory approach with residents and the broader community.
- Ensure provision of an effective complaints process.
- Adaptively respond to emerging community concerns and changes in the social environment.

During the EIS exhibition, the following additional community consultation activities were undertaken.

Table 3-2 Community consultation during the exhibition of the EIS

Stakeholder group	Date	Consultation methods and outcomes
Key stakeholders	April 2023	April newsletter including: • Summary of submissions. • Update on key issues raised: insurance and agricultural land impacts.
Key stakeholders	April 2023	Additional information added to Project website including: • Summary of submissions. • Update on key issues raised: insurance and agricultural land impacts.

3.3.2. Agencies and other stakeholders

During the EIS exhibition and the preparation of the response to submissions, the following consultation was undertaken with agency stakeholders.

Table 3-3 Outcomes of community consultation

Agency stakeholder	Date	Consultation comments
Department of Planning and Environment	24 March 2023	Overview of progress on Submissions Report: • Summary of issues raised by the public presented. • Draft responses to agency comments presented. • High level discussion on proposed change to BESS onsite storage from 1 to 2 hrs. DPE committed to provide further advice on insurance issue being raised in a number of submissions as well as the need for an Amendment Report.
	6 April 2023	NGH provided specialist advice regarding proposed change to BESS onsite storage from 1 to 2 hrs and proposed to prepare an Amendment Report in consideration of this change.
	18 April 2023	Elgin Energy sought assistance in relation to: • Progressing the response from BCD in relation to how to make the necessary BDAR amendments. • Insurance costs; departmental stance. • Additional submissions not yet provided (2 at this time). • IPC time frames.

Agency stakeholder	Date	Consultation comments
	June 2023	DPE provided their peer review of the soils assessment presented in the EIS and raised concerns regarding the different conclusions reached by SLR, Minesoils and in their review. The Applicant proposed to undertake a higher level of soil survey and updated the Soils and Agricultural Impact Assessment. Included as Appendix F.
Biodiversity Conservation Service	May 2023	AREA consulted BCS regarding Land Category Assessment results and updates to the BDAR required by the agency.
Transport for NSW	22 January 2023	Comments were received from TfNSW have been addressed in an updated Traffic Impact Assessment. The assessment provided with this report includes updates which are presented in Section 7 of TIA report (Appendix E) and provided in the agency response section 5.1.6. The updated report was forwarded to TfNSW on 18/4/2023.
Bathurst Regional Council	April 2023	Elgin provided Council with an update on the Project and sought a signed letter to evidence Council's in principal support of the VPA incorporating benefit sharing arrangements.
Essential Energy	April 2023	Ongoing proactive consultation by Elgin Energy with Essential Energy has been undertaken with regard to connection to the grid (off-site infrastructure refurbishment / augmentation). Since the submission of the EIS, Elgin Energy has sought further information from the ASP who is designing both the 11kv and 66KV route upgrades. The Accredited Service Provider is Sustainable Energy Designs (SED), who state: • The 66kV line requires approval from UGLR for an external works i.e., crossing the rail line & upgrade (i.e., if two pole structures running alongside the rail corridor need to be replaced). • IUGLR, who are based in Orange have been contacted. • The application for external works takes approximately 6–8 weeks for approval as this is not new works but just an upgrade. • Details of the proposed conductor heights, pole heights & structure type suitable for rail crossing will be required. • These details will be submitted to UGLR when they are available. It is noted the details cannot be provided at this time. SED has also contacted TfNSW (main roads) noting they will mainly be concerned with where the poles are located within the road alignment. Again, this will be subject to detailed design at a later stage.

4. Response to public and organisation submissions

Each issue raised through public submissions is addressed below. Submission IDs are used to show the number of submissions that raised a particular issue and to identify which submission raised each issue. Appendix A provides the full list of submission IDs for tracking purposes and provides a reference to submission IDs stated in this section for ease to locate questions and answers raided by individuals.

These issues are categorised as outlined in Section 2, in accordance with the DPE guidance categories. Each issue has also been broken down into sub-issues. These sub-issues are noted under each issue heading and labelled alphabetically.

As can be seen by the first issue raised, location, this issue can be broken down into several more specific aspects. To avoid duplication, NGH attempts to address each specific aspect fully in only one location. Furthermore, some issues may be considered relevant to a number of categories; to avoid duplication, a cross reference is provided in these cases to the full response.

As part of the response, where it has led to or is related to a change to the Project, this is summarised briefly. Appendix B provides the full updated set of mitigation strategies now proposed.

4.1. The Project itself

4.1.1. Location of the Project

A. Project should be sited in a Renewable Energy Zone

Issue summary

NSW government has identified five Renewable Energy Zones (REZ) for placement of renewable projects and Bathurst is not among them. This development is better suited for Orana REZ which is not too far from Bathurst.

Submission reference

SE-52846217, SE-52839979, SE-52839973, SE-52827497, SE-52827465, SE-52827457, SE-52817238, SE-52817213, SE-52526207, SE-52497487, SE-52415715, SE-52271982, SE-52182457, SE-52152471, SE-52042957, SE-51098966, SE-52134292, SE-52633987, SE-52448710, SE-51123212, 4.3.64.4, SE-52445958, SE-52826959

Glanmire Solar Farm Project response

Renewable Energy Zones (REZs) are being created to concentrate power generation, transmission, and storage in identified areas to unlock new capacity for the energy grid. This will mean that instead of each project building transmission lines to connect to the grid, certain locations will be prepared in advance to accept more connections. However, the NSW Government's revised Large Scale Solar Guidelines (DPE, 2022a) recognises that to meet state and national clean energy targets, renewable energy Projects are also required outside of the REZ areas; about 70% of existing solar development is outside of a REZ.

The Glanmire Solar Farm can connect to an existing infrastructure with capacity to accept the Project's generation with minimal augmentation works required. Its close proximity to the grid connection point on the northern site boundary and alignment with augmentation works agreed to by Essential Energy, will reduce construction costs and largely reduces the requirement for new infrastructure required only for this Project.

It is of an appropriate scale and location to make use of existing infrastructure and in the context of NSW planning guidance and polices, the Glanmire Solar Farm is not deemed inappropriately located because it is outside of a REZ.

B. Location does not receive enough solar exposure

Issue summary

Solar irradiance has not been properly considered as factor in site selection. There are sites with better solar irradiance. The Project has failed to consider sunny days lost due to fog in the Glanmire basin; heavy fog days are frequent in the Bathurst Region across eight months of the year.

This will affect the efficiency of the Project solar and the amount of solar that could be produced. Although solar can still operate on cloudy days, why would Glanmire be a preferred location over one where the chance of fog cover/ rain etc would be minimal to rare. This is a key factor when looking at locations that can ensure a strong and efficient production of solar.

Submission reference

SE-52839968, SE-52497487, SE-52152471, SE-52448710, SE-52817221

Glanmire Solar Farm Project response

Average solar exposure at the nearest station weather at Bathurst Airport is 17.4 MJ/m^{-2} as of 2023 (BOM, 2023). The software package used by the Applicant for the sizing and data analysis of solar systems constructs detailed solar models using hourly satellite data taking into consideration all meteorologic events or systems. Fog is included in the input data.

Higher solar irradiance can be found at many locations in Australia, refer to Figure 4-1. However, solar irradiance is not the key factor in site selection for solar farm development. For this reason, viable solar farms are constructed in areas (including Melbourne and European countries) with much lower irradiance.

Proximity to connecting infrastructure and capacity of the grid to accept the power generated, low relief terrain of appropriate aspect, suitable access for construction and willing landowners are the critical components in securing a site which will be viable from a construction cost and operational yield perspective. Secondly, a location where environmental and social impacts can be minimised effectively will ensure it is a project which is approvable and can be supported by local stakeholders.

The Glanmire Solar Farm Project location provides suitable irradiance levels in combination with good grid capacity and access. This ensures the power generation will not be reduced by what the grid can accommodate and keeps construction costs low, respectively. The terrain is low relief and will also minimise construction costs. With the setback distances and vegetation screening adopted, it will have low impacts on local amenity. Requiring a relatively small soil disturbance footprint, the soil capability can be retained post decommissioning of the Project to return to agricultural or other suitable activities. As such it is considered both viable and approvable, based on its location and scale.

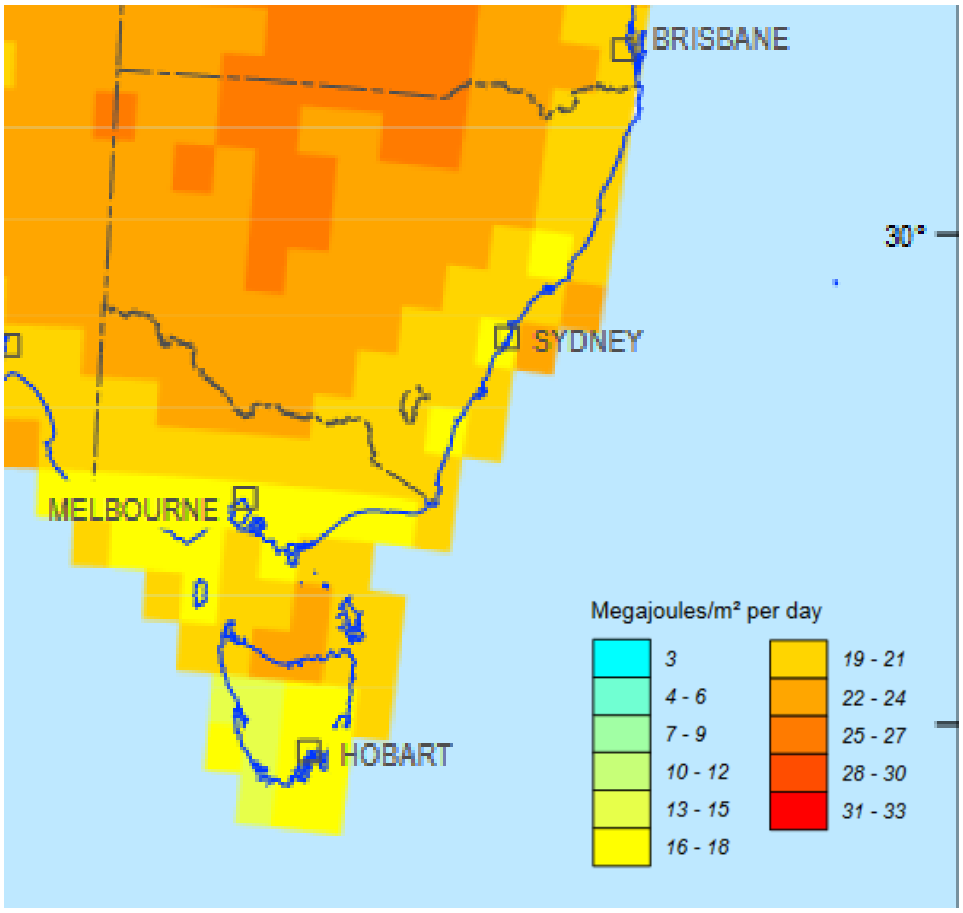


Figure 4-1 Solar irradiance levels per day Source: (NASA, 2009)

C. Excellent site which has less biodiversity impact (Support)

Issue summary

Since the land the Project will be located on has been used for many years for agriculture, and it has very little tree cover and the Solar farm will have minimal impacts on biodiversity.

Submission reference

SE-52506457, SE-51085713

Glanmire Solar Farm Project response

Site selection and early layout planning have aimed to ensure that biodiversity impacts would be low and manageable. This is now verified by the detailed biodiversity assessment prepared for the Project. While the site is largely modified pasture, the better areas of riparian habitat can be largely avoided; the Project includes a 'waterway exclusion zone' through the centre of the site. It will be enhanced as part of the Project's environmental commitments by additional tree planting, as well as a larger southern set back area on the site's southern boundary.

4.1.2. The Applicant

A. Integrity of Applicant as a Company

Issue summary

Applicant not an Australian owned company.

Concern that the Applicant is a paper company with no assets. How can they fund the Project?

Suggests that we need to keep resources and infrastructures secure in the future and that private enterprise gains at the expense of taxpayers under this arrangement.

Submission reference

SE-52846217, SE-52846215, SE-52504963, SE-52415715, SE-52397473, SE-52304709, SE-52084209, SE-52571457, SE-52832712, SE-52817235, SE-52526207, SE-51123212

Glanmire Solar Farm Project response

Elgin Energy was founded in 2009 in the United Kingdom and opened their Australian office 2018. Elgin Energy are currently developing over 1,000MW of solar and BESS projects across Victoria and New South Wales for deployment from 2024 onwards. They have delivered successful solar PV Projects across sites in UK, Ireland and US and have provided clean, green energy for the equivalent of over 60,000 households (250MW).

As is typical of project developments of this nature, a separate Special Purpose Vehicle (SPV) is created. This is long established and accepted requirement from a legal, finance, tax and operations perspective and most if not all projects of a similar nature structure solar development it in a similar manner. Some of the rational for doing this includes:

- It is a requirement from the banks in order to provide project financing so that the lenders can ringfence income and expenditure of the project and have security over the cash flows.
- From an insurance perspective, it is preferred that specific risks of the project are ringfenced in an SPV.
- It allows flexibility for individual equity investors to have different shareholdings in each project, depending on their mandate.
- Legally, contracts are with the SPV, which holds the assets of the project and gives security to counterparties.
- Taxable profits from the project, capital allowances, GST and other taxable liabilities are all accounted for in the SPV.
- Operationally it is more efficient to report on an SPV basis.

The SPV is a legal Australian entity with an Australian Company Number, is liable to Australian taxes and subject to the laws of Australia. No public funding has been received to finance the development and construction of the Glanmire Solar Farm Project.

It is anticipated that once the project is fully permitted, it will continue to be funded by our investors who have funded the project costs to date. In addition, it is anticipated that project finance will be forthcoming from the lenders, with many banks showing a strong interest in helping to finance the project. We have ongoing talks with the CEFC, the Federal Government owned green bank. Many Australian superannuation funds have a keen interest in investing in Australian renewable energy assets and there may be an opportunity for one or more of them to partner with Elgin on the project.

Elgin Energy are a part of securing Australia's transition to a more sustainable renewable energy powered grid. They are committed to seeing emission reductions in Australia and are aiming to deliver over 1000 MW over the next three years in New South Wales and Victoria. It is noted at the development of the solar and wind renewable energy industry in Australia has been very much on the back of foreign experience and capital. NSW has been fortunate to have attracted foreign skills and funding to commence the transitioning the National Energy Market to more sustainable footing, as coal plants are scheduled for retirement and the appetite to approve new coal generation facilities expires.

For taxpayers and Australian businesses, there is a net benefit from the Project. Employment is generated atthe planning, construction and operational stages. The Glanmire Project has been focused on ensuring the benefits of the Project are equitably shared particularly in the local community. This includes use of local contractors, community funds, voluntary contributions to local Council, improvements to local assets (transmission network and road upgrades) as well as the local economic stimulus that will accompany the estimated 12 month construction program.

B. Applicant is not transparent in their work

Issue summary

Applicant is not transparent in their work. They try to withhold information and have not clearly communicated with community from beginning.

The Applicant is gaming the system for their own financial gains.

Submission reference

SE-52846215, SE-52827465, SE-52827457, SE-52816209, SE-52641459, SE-52526207, SE-52504963, SE-52415715, SE-52184710, SE-52448710, SE-52571457

Glanmire Solar Farm Project response

The development of a State Significant solar farm development is a long process and there is often community concern in relation to delays and the release of information. While the intention of Elgin Energy and the assessment team is not to withhold information, there are reasons to control its release and set clear expectations around how community engagement can shape the Project.

Generally speaking, there are necessary confidentiality agreements as developers seek out interested landholders and secure options to lease land for renewable energy Projects. As the REZs are established, and competition increases for optimal sites close to suitable connection points, this is likely to become more apparent for renewable energy projects.

Then, as early investigations are progressed from desktop through to site validated detailed assessments, their recommendations shape the Project progressively. Early results and Project layouts will be replaced by more conclusive findings and more refined layouts that reflect site constraints. In the case of Glanmire, studies which took the most time and / or resulted in the most changes to the Project layout included visual, noise, biodiversity, Aboriginal heritage, and traffic.

There is a need to manage the release of information so that the information is not perceived as contradictory of earlier findings and to show how conclusive findings have shaped the Project. The intention is not to withhold information but to ensure the information provided is of most value to developing a responsive Project and increases the community's understanding of the Project, avoiding contradictions where possible. For this reason, consultation activities in advance of the EIS's completion more often centre on process and assessment methodologies than on presenting specific results. The exception to this is where specific impacts are discussed with neighbours; also, a setting in which privacy issues must be respected.

The NSW government guidance sets out expectations with regard to consultation to ensure that projects are designed and assessed to reflect the local community values and maximise social license for these long term projects. State Significant Developments. Elgin Energy established a Community Consultative Committee (CCC) for the Project to provide a forum for open discussion between the strategic stakeholders of the Project. In addition to the CCC, Elgin Energy set up meetings, liaised with residents and organised multiple drop-in sessions in Bathurst. In these events the SSD assessment process, specialist assessment methodologies and how the community could participate were discussed in a clear and transparent manner. Once finalised, the findings of the EIS studies were presented with the indicative infrastructure layout. This occurred immediately prior to the EIS exhibition period.

These issues are common to State Significant solar farm development. While the Glanmire Solar Farm Project would be a commercial profit generating operation, the intention is to meet all relevant NSW government guidance to ensure the Project is approvable and appropriate to its social and environmental context.

C. Experience of developer

Issue summary

Developer does not have experience to deliver large renewable Projects. This developer has no reasonable deliveries of such large solar infrastructure in Australia.

There appears to be major flaws and inconsistencies within the information provided by the proposed developer. This seems to be the case of jump in and secure the area and then work out all the mistakes as time goes by.

Submission reference

SE-52846215

Glanmire Solar Farm Project response

Elgin Energy has delivered successful solar PV Projects across sites in UK, Ireland and US and have provided clean, green energy for the equivalent of over 60,000 households (250MW). They have a strong track record of 98% in progressing their Projects through the planning system to date. They have successfully obtained planning permission for close to 70 Projects. Since 2018, Elgin Energy have been developing Projects throughout Victoria and New South Wales and are aiming to deliver over 1 GW over the next three years.

The Project outline presented in the Scoping Report has been replaced by a Project which has responds to the results of the more intensive investigations undertaken as part of the EIS. The Project now includes specific set back areas (for visual amenity), exclusion zones (protecting waterways and Aboriginal heritage items) and operational restrictions (for glare) that will ensure its residual impacts are acceptable and approvable. The viability of the Project remains strong in consideration of these issues. This is not a case of fixing mistakes, but of designing a project to have the least impact on local social and environmental values. This process has been informed by the detailed environmental investigations presented in the EIS.

D. Not clear with the planning authority during scoping stage

Issue summary

Applicant was not clear with the state planning authority or near neighbours in the preparation of its Scoping Report. Key information questioned included the Applicants descriptions of the company's legal status, the

early commencement of soil testing and communicating the early opposition to the Project to DPE and neighbours.

Submission reference

SE-52571457

Glanmire Solar Farm Project response

The Scoping report is prepared for the Applicant by experienced environmental planners to ensure that all relevant NSW government guidelines are met.

The aim of a Scoping report is to provide sufficient broad information about the Project and its context to allow agencies to set out the 'form and content' of the Environmental Impact Statement (EIS) that will be prepared to support the Development Application. It is proper that new and more detailed information collected during the detailed EIS phase replaces the general information collected earlier. It is also proper that consultation results collected during the EIS phase refine the Project description. The intention is to provide a more considered description of the Project and its context in the EIS. This is not dishonest or the result of poor practices; it is the necessary progression pathway for a responsive Project.

The content of the Scoping report accurately reflects:

- The Applicant - Elgin Energy is an international solar developer with established operations in the United Kingdom and Ireland. Elgin Energy established an Australian office in 2018.
- The results of early soil testing and land soil capability assessments.
- Issues raised in one on one and broader community engagement activities undertaken, noting strong opposition from the Glanmire Action Group.

4.2. Procedural concerns

4.2.1. The EIS process

A. Associated development

Summary of issue raised in submissions

There is ongoing uncertainty in relation to grid connection. The transmission lines need to be upgraded in order to transmit electricity produced by this solar farm. The impacts of this transmission line upgrade have not been properly assessed.

The Applicants have failed to show neighbours exactly how the proposed development will connect to the grid. Major upgrades of power lines would be required and there is no certainty as to the route or style of the upgraded lines.

Nearby landholders, and other community members, may be subject to visual impacts or changes to easements across their land. The project should not be approved without certainty, and appropriate disclosure, of the potential changes to the power network infrastructure to allow the project, should it be approved, to connect to the grid.

Submission reference

SE-52415715, SE-52633987, SE-52448710

Glanmire Solar Farm Project response

The Project requires connection to the electricity network and Essential Energy have confirmed that they are amenable to this, pending Project approval. Essential Energy have confirmed the connection will require a refurbishment / augmentation of existing transmission lines built for 66kV capacity within existing easements, with the possibility of relocation of a short section of 11kV line outside existing easements. Essential Energy has verified that the assessment of these works would be sought separately under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), with Essential Energy to be the determining authority. This is appropriate as Essential Energy will therefore maintain responsibility for the works required to their assets and can consider the broader network requirements and implications. Further, the environmental mitigation strategies will align with their procedures and any changes to the works or assets in future will be addressed similarly, by Essential Energy under Part 5 of the EP&A Act and do not require Essential Energy to pursue an SSD Modification Application.

However, as the works are required to connect the Glanmire Solar Farm to the grid, they must also be considered within the EIS. Because they are not in control of these works and there is no detailed design of the augmentation works at this time, Elgin Energy need to be careful with how this component is presented and assessed within the EIS. The best available information available at the time was presented but uncertainty was clearly identified in the EIS. This is to avoid the risk of presenting inaccurate information that the Applicant is not in control of. Essential Energy could elect to undertake works differently at a later date. The details will be developed in line with Essential Energy's processes and in consultation with landowners burdened by existing easements. The assessment of the augmentation works within the EIS has been done commensurate with the risk posed by the works, which is appropriate to State Significant Developments and this Project's SEARs.

Communication with the community about the works happened late in the assessment timeline, immediately prior to the finalisation and exhibition of the EIS. At this time, the best information available could be provided. In October 2022, Elgin Energy:

1. Held a community information session with specific information on these augmentation works and the results of the high level assessment.
2. Contacted neighbouring landholders for an in person meeting to discuss this as well as the final results of the EIS and Project layout.
3. Distributed a newsletter to the community including 5 pages of coverage of the reasons for the network augmentation, its general scope, high level assessment results and the reason why more detailed information and certainty was not possible at this time.

In the EIS, the final conclusions regarding visual and land use impacts of the expected route augmentations were presented. The outcomes were:

- Visual impacts are considered low.
- Agriculture (large local machinery movements):
    - Even when on existing easements, overhead lines can be a constraint to moving equipment in the locality. Locating poles in consultation with landowners is required to reduce impacts of powerlines on agricultural operations and remove the risk to human life, given the risk of touching a live line with tall machinery.
    - The reconfiguration may provide some improvements to landowners where existing line heights are a constraint. This is recommended to be explored by Essential Energy.

The EIS included a commitment to address impacts on agriculture to the full extent of its ability:

C2: Essential Energy 66kV infrastructure refurbishment

Elgin Energy[5] would advocate for a design developed in consultation with local landholders to minimise the impact of transmission lines on agricultural equipment use and local movements.

B. Associated development (Support)

Summary of issue raised in submissions

There are minimal impacts for connection of the Project to Raglan substation. The connection lies within an existing easement of a power line and will require an upgrade; however Essential Energy regards this as of low environmental impact.

Submission reference

SE-52506457, SE-52519217

Glanmire Solar Farm Project response

Since the transmission easement is already present and the environment it occurs is highly modified, the refurbishment has been assessed as low impact, both by the Glanmire Solar Farm environmental assessment team. Communication from Essential Energy is that they also consider these to be minor works.

C. Errors and lack of mitigation commitments

Summary of issue raised in submissions

EIS contains lot of inconsistencies and errors. EIS is considered misleading and incomplete.

It also lacks commitment where mitigation measures are proposed. EIS is considered misleading and incomplete. Mitigation measures presented in the EIS are not sufficient.

Submission reference

SE-52467961, SE-52633990, SE-52497487, SE-52415715, SE-52276223, SE-52828723, SE-52641459, SE-52152471, SE-52448710

Glanmire Solar Farm Project response

It is acknowledged that some errors may be present in the EIS; it is a large document at over 320 pages excluding the appended reports of eleven specialist teams. NGH would like to take this opportunity to apologise if this made the review of the EIS more difficult. It is the aim of the EIS authors to present the Project information and assessment in a manner that facilitates review and engagement by any interested member of the public.

It is important to note that some inconsistencies are part of the assessment approach, however. Each of specialist teams are instructed to make the necessary precautionary assumptions to ensure their assessment is rigorous. In some cases, this means their assumptions appear contradictory with the Project description. For example, it is not proposed to operate the three nosiest machinery items concurrently for the duration of the construction phase, but this is a useful assumption to provide strong noise mitigation strategies. Similarly, it is not proposed to remove the ground cover beneath the solar array, but assuming this vegetation will be removed provides a conservatism to the biodiversity assessment and ground cover management mitigation

[5] While the works will be Essential Energy assets, Elgin will advocate on behalf of local landholders to maximise benefits of the refurbishment that can be obtained where practical.

strategies. It is also a requirement for the EIS to acknowledge uncertainty. This may be perceived as a weak or incomplete assessment however, it is not a weakness but can be a strength of the assessment approach, allowing risk management strategies to be developed where required.

It is acknowledged that the lack of detail within mitigation strategies contained in the EIS can also be perceived as a lack of commitment. However, this 'framework' approach to outlining required management plans and their minimum requirements but leaving their detailed preparation until closer to commencement of construction is common to most SSDs. The detailed design stage commences only *after approval has been granted.* The final specifications and location of infrastructure are subject to change during detailed design, based on the input for further topographic surveys and Project optimisation gained through competitive tender procurement processes. This flexibility is consistent with the *State Significant Development Guidelines – Preparing an Environmental Impact Statement* which states

> '*… with some large, complex Projects this flexibility is often essential as it is difficult, if not impossible, to deal with all aspects of the design of these Projects at the EIS stage.'*

Elgin Energy is committed to the mitigation measures developed for the Project (provided as a consolidated table in Appendix B). Along with the Project description and conditions of approval enforced by NSW DPE, they will form part of the Project's consent, if approved. The detailed management plans will in most cases be prepared in further consultation with relevant agencies and endorsed by DPE prior to commencement of construction.

D. Did not use local people who understand site context

Summary of issue raised in submissions

Applicants did not use local people or local consultancy who would have better understanding of the site and could better understand problems of regional communities.

Submission reference

SE-52846217, SE-52526207

Glanmire Solar Farm Project response

NGH were engaged to prepare the EIS, bringing together the work of eleven specialist teams. Although NGH is not a locally based consultancy, it has always maintained a strong regional focus and has become one of Australia's premier consultancies specialising in renewable energy development largely due to its understanding of regional environmental context and regional communities from which it grew.

Elgin Energy selected NGH through a competitive tender process. Key selection criteria included demonstrated experience to deliver a high-quality environmental assessment for a regional solar farm. Since 2008, NGH has worked on more than 60 solar farm Projects in regional Australia.

The community consultation and social impact assessment teams use surveys, interviews, face to face meetings and open house forums to engage with the local community to ensure local issues and values were captured in the Project's assessment. The environmental assessment teams ground validated key matters including visual, soils, biodiversity, Aboriginal and historic heritage, and traffic to ensure the accuracy of the assessment.

E. Impossible to identify risk without equipment details

Summary of issue raised in submissions

Suggests it is impossible to identify the risks involved without details of the solar farm equipment to be used.

Submission reference

SE-52571457

Glanmire Solar Farm Project response

The EIS is careful to leave some flexibility in the final selection of solar farm equipment however and to assess the Project mindful of that the final specifications have not yet been made. This can be perceived as a risk but is common to most SSDs, where the detailed design stage commences only *after approval has been granted.* An indicative list of equipment, materials, timing and an indicative layout is presented however, uncertainty is clearly acknowledged. The final specifications and location of infrastructure are subject to change during detailed design, based on the input for further topographic surveys and Project optimisation gained through competitive tender processes. This flexibility is consistent with the *State Significant Development Guidelines – Preparing an Environmental Impact Statement* which states

> '*… with some large, complex Projects this flexibility is often essential as it is difficult, if not impossible, to deal with all aspects of the design of these Projects at the EIS stage.'*

The EIS states its assumptions clearly so that if assumptions change, then the conclusion of the assessment can be revisited. A Modification Application is often made for utility solar SSD Projects due to the need to revisit assumptions made at the EIS stage.

One change has already been identified in relation to the battery described in the EIS; the preferred supplier no longer makes 1 hr battery storage units. Different battery storage technologies, such as lithium-ion (Li-ion), sodium sulphur or lead acid batteries, can be used for large scale battery storage projects and grid applications. However, in recent years, most of the battery storage market growth has been seen in Li-ion technology. At this stage, the Battery Energy Storage System of the Glanmire solar farm project is likely to be Lithium Iron Phosphate (LFP).

Regarding the battery layout, the proposed battery configuration for the project is AC coupled. AC coupled configurations are typically used for solar and battery storage projects in Australia. In an AC coupled configuration, the solar farm and battery storage asset are co-located with two separate sets of inverters. The battery is charged by converting the electricity generated by the solar farm from DC to AC which is then converted back to DC at the battery storage inverter. The battery storage asset can function independently of the solar PV system.

At the EIS stage, strategies including 'worst case' assumptions for areas of impact and infrastructure parameters are used by the specialist teams to build in the flexibility required in the detailed design stage and where possible ensure the assessment is robust to small changes, negating the need for Modification applications. Furthermore, where required, additional assessment, analysis and prescriptive guidance forms a commitment of the Project. For example, with regard to the battery specifically:

> *H1 Controls set out in the PHA hazards register will be implemented throughout all stages of the Project….*

The hazards register is a prescriptive list included within the mitigation measures to address the lack of detail at this stage. Clear caveats are also included in the PHA and EIS, to make assumptions clear.

F. Site selection evaluation inconsistency

Summary of issue raised in submissions

Developer secured the lot and started process to make it feasible and not the other way around; while the solar capacity is said to be verified in 2019 the only claimed confirmation in the EIS, *Table 2-1 Site Evaluation*, refers to Optimal Solar Resources citing material from the Bureau of Meteorology for January to March 2022 (EIS p29).

Submission reference

SE-52571457, SE-52448710

Glanmire Solar Farm Project response

NSW Government guidelines for State Significant Development and for large scale solar have changed considerably since the Elgin Energy commenced early investigations. To ensure the Project is approvable in the current planning context, the EIS's site evaluation criteria reflect the most current guidance.

The Applicant's site selection decision making criteria can be summarised as consideration of:

1. Identification of a site near to transmission network / substation, to reduce cost of connection.
2. Land of low relief, good access and suitable solar yield to minimise costs of generation. Solar yield/ irradiance is discussed in Section 4.1.1 of this report).
3. Landholders agreeable to forming long term leases for the construction and operations of a solar Project.
4. Manageable environmental and social impacts; ability to avoid and minimise impacts on key values.

In practice, these are revisited throughout the EIS's detailed investigations as they are related to one another; 1 and 2 are undertaken at a desktop level as a priority but will be revisited on the basis of more detailed and ground truthed information. 3 and 4 happened in tandem and more iteratively. The results of the EIS investigations may affect all of these criteria; for example, exclusion zones that may result from environmental and social values may affect predicted operational yields and / or commercial agreements with landowners.

G. Changes to regulations

Summary of issue raised in submissions

There has been ongoing confusion and uncertainty regarding how the former 2018 Large-Scale Solar Energy Guidelines, the Proposed 2021 Amendments interact with the newly adopted 2022 Large-Scale Solar Energy Guidelines. Further, both the Agricultural Commissioner and the NSW Fire Brigade are yet (at the time of writing) to release reports on solar farms and their impacts.

Submission reference

SE-52448710

Glanmire Solar Farm Project response

Since the DPE guidelines were changed midway through the assessment, the Project was not required to adhere to the new guidelines in full. For example, the Large scale solar energy guideline and associated visual and agricultural assessment guidelines were finalised in August 2022, well after the assessment was commenced and quite near the date of EIS submission in October 2022. However, understanding this context, the Project tried to 'get ahead' of changing expectations early in the assessment which stood it in good stead when evaluated against the new guidelines. For example:

- An agricultural impact statement was committed to at the Scoping report stage, though was not a requirement for the Project at that time.
- The visual impact methodology was an amalgamation of methodologies, in anticipation of the visual guideline changes. Its final evaluation of visual impact ratings uses the newly endorsed methodology.

This has created some additional complexity but in all cases the EIS assessments can be considered to meet the required DPE guidelines at the time of lodgement.

The Agricultural Commissioner was not available at the time of EIS preparation but has now been addressed in this report, refer to Section 4.3.3, in relation to insurance issues.

H. Applicant has done all they can to identify impacts (Support)

Summary of issue raised in submissions

Elgin Energy invested in specialist technical investigations for visual and landscape, biodiversity, heritage, agriculture, noise and vibration, traffic, social, PHA and hydrology.

Submission reference

SE-52506457

Glanmire Solar Farm Project response

These specialist investigations were prescribed by the SEARS issued by DPE. They have been prepared by experienced specialists and the results have informed the Project's environmental commitments as well as design.

I. Good mitigation measures proposed (Support)

Summary of issue raised in submissions

Acknowledge and approve the mitigation measures applicant has proposed.

Submission reference

SE-52506457

Glanmire Solar Farm Project response

The measures adopted rely on standard solar farm strategies but also reach where possible for a 'best practice' outcome, to provide the best possible social and environmental outcome for this Project.

J. Conflict of interest

Summary of issue raised in submissions

Conflict of interest with authors and peer reviewer for Agricultural assessment.

Submission reference

SE-52497487

Glanmire Solar Farm Project response

SLR prepared the Agricultural Impact Statement, finalised in September 2022. A Draft version was provided to Minesoils Principal Consultant & Director, Clayton Richards for peer review and comments provided by Minesoils were included within the final report.

The intention of seeking the peer review was to improve where possible the rigour of this assessment, ensure assumptions were conservative and demonstrate to the community the Project's commitment to best practice.

Minesoils is a specialist environmental consulting firm providing expertise and practical advice to the mining, infrastructure and power related industries in the areas of soils, agriculture and rehabilitation. Minesoils Director, Clayton Richards is a Certified Professional Soil Scientist (CPSS). This information is disclosed within the EIS documentation and no conflict is perceived.

The authors have no conflicts of interest to declare. We certify that the submission is original work and is not under review at any other publication.

K. Risk of Project extension

Summary of issue raised in submissions

If the NET Zero policies create ongoing demand for renewable energy, there will be a risk of extension of the term of the Project.

Submission reference

SE-52448710

Glanmire Solar Farm Project response

It is possible that the Project's operational life will continue, longer than the 40 years approximated in the EIS. Consent conditions for State Significant Developments such as this do not typically limit the operational life; the approval is considered indefinite. If a longer life span is viable for this Project, and all conditions of consent can still be met, the Project's actual operational life may be extended. This will depend on many factors, the most important will likely be the prevailing energy markets at the time.

4.2.2. Community consultation

A. Adequacy of consultation

Summary of issue raised in submissions

Applicants did not properly consult with locals. Lack of effective and adequate consultation and engagements with local community; Applicant did not properly consult with locals. Some community consultations were proposed and cancelled and never rescheduled.

Submission reference

SE-52839979, SE-52817235, SE-52624507, SE-52415715, SE-52127477, SE-52109210, SE-52448710, SE-52571457, SE-52641459, SE-52504963, SE-52497487

Glanmire Solar Farm Project response

It is difficult to ensure all locals wanting to discuss the Project have the opportunity to do so. For this reason, the EIS engagement included a broad range of engagement activities aimed at developing awareness of the Project, providing opportunities for community members to raise concerns, work through issues and capture local opportunities for the Project. CCC which included an Independent Chair and a balance of representatives from the community provided an additional conduit to the community.
Specific activities included:

NGH were engaged to manage the consultation process as the EIS was prepared, from early 2021 to the final Project newsletter distribution on 18 November 2022. There were a broad range of engagement activities to ensure the community were given many opportunities to provide their feedback. The activities aimed at

developing awareness of the Project, providing opportunities for community members to raise concerns, work through issues and capture local opportunities for the Project.

Specific targeted activities were undertaken to capture locals in particular:

- Establishment of a Community Consultative Committee (CCC) which included an Independent Chair and a balance of representatives from the community. This was a very specific mechanism to ensure local community representatives could engage directly with the Project.
- Information sessions/drop-in style sessions at local venue and events including the Royal Bathurst Show, Bathurst Memorial Entertainment Centre and Key Stone 1889, advertised in advance to provide opportunities for one on one discussions with locals.
- Direct communications including letters, emails and phone calls.
- Property visits.
- Presentations, meetings and briefings.

Broader consultation tools were also employed:

- Social media postings.
- Newspaper advertisements.
- Newspaper articles.
- Newsletter updates.
- Use of online communication tools including website and survey.

It is correct that specific online meetings were planned but never occurred in late October 2022, due to no near neighbours taking up the opportunity to meet with the Applicant and assessment team representatives. No request was made to reschedule these meetings to another time.

In terms of its effectiveness, the consultation process was able to provide a clear context of the concerns and values of locals as the background to the EIS's environmental investigations and the development of mitigation strategies. Particularly, issues raised were addressed in tailored newsletters and fact sheets to increase the understanding of specific aspects of the project such as impacts on agriculture, insurance premiums as well as capture local benefit sharing initiative commitments.

In terms of its adequacy, the engagement activities were in line with NSW DPE State Significant Development engagement guidelines. Throughout the engagement process, the engagement was:

- Open and inclusive.
- Easy to access.
- Relevant.
- Timely.
- Meaningful.

The engagement strategy separated stakeholder groups and addressed them specifically, in line with their level of interest in the Project, for example; near neighbours, interest groups and the broader community. In line with the guidelines, clear and concise information about the Project was communicated to stakeholders, activities were implemented which encouraged participation and the results were reported back within the EIS (Engagement summary chapter 5.1 as well as to specific assessment chapters, such as Land compatibility, chapter 6.4, and Social and economic impacts, chapter 6.7). The EIS received 137 submissions from the public during its exhibition; a strong signal that the consultation was effective in engaging the community to participate in the SSD process and provide their feedback on the Project.

Specifically this included three formal face-to-face consultation activities at local events and venues.

It is correct that specific online meetings were planned but never occurred in late October 2022, due to no near neighbours taking up the opportunity to meet with the Applicant and technical representatives to discuss the Landscape and Visual Impact Assessment (LVIA) results. No request was made to reschedule these meetings at another time.

B. Failed to provide minutes

Summary of issue raised in submissions

Applicant failed to provide minutes of second near neighbour consultation session and the minutes from the first were not adequate.

Submission reference

SE-52415715

Glanmire Solar Farm Project response

A summary of points from the first online near neighbour engagement meeting were distributed to attendees and included summarising what was discussed. It is acknowledged that this may not have included the level of detailed minutes preferred by some participants.

The second online near neighbour meeting occurred on 7 September 2022. Three out of the four near neighbours did not attend the second meeting and we apologise that minutes were not received by these neighbours. We understand that one near neighbour group was sent the summary of points and we will distribute this document to all near neighbour groups acknowledging this.

C. Responsiveness of Applicant

Summary of issue raised in submissions

Many requests to Applicant are outstanding.

Submission reference

SE-52526207

Glanmire Solar Farm Project response

We understand that there was a request for information regarding the risk of increased insurance premiums at the Glanmire Action Group meeting Thursday 20 October 2022. This matter has taken some time to investigate, and it is understood that the Department of Planning is also still forming an opinion on this matter.

Elgin Energy have liaised with several insurance representatives to investigate this matter further. The information update was provided in the April 2023 newsletter which was distributed specifically to the Glanmire Action Group. as well as other stakeholders and is available on the Project website includes an update on this matter. A more detailed response is now provided in this document, Section 4.3.3.

The Applicant is not aware of any further requests. Should there be any further requests outstanding, the Applicant will endeavour to respond as soon as possible.

D. Lack of effective consultation

Summary of issue raised in submissions

Visually affected neighbours claim they were not affectively consulted regarding the results of a visual assessment. Table 5-2 of the visual assessment states “Follow up meetings in October. Reach: 0 – No Neighbours opted into follow up LVIA meetings” This is incorrect.

Submission reference

SE-52415715

Glanmire Solar Farm Project response

Key findings of the LVIA were circulated in detail, in advance of the September and October Project update newsletters, to those most affected by the stakeholder list. The full LVIA report was sent to the near neighbour group on 10 October 2022 so they could view their property photo montages and results prior to the EIS going on exhibition. The key findings were also circulated in the September and October 2022 Project update newsletters to the broader stakeholder list.

While neighbours did request a follow up meeting at their residence to go through LVIA results, the LVIA specialist was not available to do this in person. However, the specialist was available to talk through results of the assessment via an online meeting and the NGH Planning lead attended the October 2022 community information session to discuss all EIS findings of interest to attendees, including the visual assessment. Individual meetings were offered to neighbours to discuss their results more specifically at this time, but no neighbours accepted this offer.

It is correct that a request was made for the visual assessment consultant specifically to return to private residences to discuss results of their assessment. However, there was no agreement to this meeting by the visual assessment consultant or the Applicant.

E. Passage of information

Summary of issue raised in submissions

No photographs provided that were taken from the site.

Submission reference

SE-52415715

Glanmire Solar Farm Project response

Many photographs were taken during the private property visits to inform the preparation of the visual impact assessment. Not all of these are required to be included in the final assessment document. The photos that appear in the document reflect:

- The Large-Scale Solar Guideline and best practice as outlined in the assessment’s methodology.
- The most affected dwellings / viewpoints (including identified future dwelling locations).

Photographs were not included, and a detailed assessment was not undertaken, for those locations where the desktop analysis and modelling confirmed the Project would not be visible on the basis of topography, or where the distance or orientation negated the need for detailed assessment.

F. No consultation about surrounding land use

Summary of issue raised in submissions

No effort to consult with any Glanmire locals who have a wealth of historical knowledge of the way the surrounding farming land has been used over many decades.

Submission reference

SE-52571457

Glanmire Solar Farm Project response

Consultation, surveys and interviews were undertaken to gather information necessary to complete a thorough assessment of the Project. With regard to farming activities, and the impacts on agriculture in the locality, DPE guidelines require this to be based on soil surveys and while historical activities are taken into account, they are not the key criteria for assessment.

It is noted that the Soil and Agricultural Impact Assessment for the EIS was originally undertaken by SLR Consulting (SLR) in 2020 and revised in 2023 prior to submission of the EIS. Minesoils Pty Ltd (Minesoils) was engaged to undertake a peer review of the report. These consultants (SLR and Minesoils) both reached different conclusions when applying and interpreting the soil assessment results. Different soil survey and analysis approaches were also recommended through the EIS submissions phase and through an independent review provided by the DPE. To resolve this issue, the Applicant has adopted a much more intensive study in consultation with DPE, addressing concerns raised in relation to the frequency and distribution of soil survey locations (now more sites and more evenly distributed across the Study Area), type of soil profile assessment (now includes excavated backhoe pits in addition to push tube core sampling) and type of analysis (increased lab analysis), as presented in this report.

The new report (Appendix F) states that in addition to other sources, anecdotal evidence provided by the land owner and previous managers has been used to verify that the site has historically supported an intensive mixed crop and livestock farming system, typical of lands of similar agricultural potential in the locality and wider region. The updated study provides further certainty on this matter including a strong basis for future management and eventual rehabilitation actions proposed as part of the Project.

G. Objection how the Community Consultation Committee operated

Summary of issue raised in submissions

Objection to how the Community Consultation Committee was handled by the Applicant and chairman.

Submission reference

SE-52571457

Glanmire Solar Farm Project response

The running of the Community Consultation Committee was not the role of Elgin Energy, the Applicant, who attended and participated in each session held. The Applicant's role included arranging specialists to speak to issues raised by the committee and follow up information on specific matters of interest. This included specific presentations on impact assessment methodologies as well as the state significant development planning process.

The chair was independent.

It is unusual for a utility solar farm to be required to establish a Community Consultation Committee at the EIS stage. Its intention, however, is to facilitate more effective information flow about the Project into the community.

The running of the CCC was not the role of Elgin Energy, who attended and participated meaningfully in each session held. This included arranging specialists to speak to issues raised by the committee and follow up on specific matters of interest.

H. Fruitful communication (Support)

Summary of issue raised in submissions

Applicants are to be congratulated for working with the community to address all areas of concern and request for further information and explanations.

Submission reference

SE-52839983

Glanmire Solar Farm Project response

In NGH's experience, the community engagement for this Project was more intensive and fruitful than comparable NSW solar farms we have worked on. We strove for fruitful discussions and provided further information to inform the understanding of the Project in the community. We took the feedback seriously, using it to shape a more responsive Project.

4.3. Environmental, social and economic impacts

4.3.1. Agriculture and land capability

A. Agriculture impact assessment does not address heat island issue

Summary of issue raised in submissions

Solar panels should be 300m from any farms in order to minimize the heat island effect.

Agricultural assessment does not mention heat island issue which was raised twice during consultation.

Submission reference

SE-52497487, SE-52828726, SE-52828707, SE-52827495, SE-52817243, SE-52415715, SE-52152471, 4.4, SE-52633987

Glanmire Solar Farm Project response

A number of studies have shown that solar panels convert incident solar radiation into heat, and this can alter the airflow and temperature profiles within and adjacent to solar panels (Anthony Dominguez, 2011). This microclimate effect is referred to as the heat island effect. It attenuates with distance and has been found to differ depending on location. In Shepparton Victoria, the Victorian Planning Panel **Invalid source specified.** accepted that solar arrays will affect air and soil temperatures within the solar array perimeter within 30m and that beyond 30m, the effects are negligible. Specific to horticultural and cropping operations, the Large scale solar guideline (DPE, 2022a) recommends a 30m set back to mitigate any heat island effect on neighbouring operations.

While it was not addressed in the Agricultural Impact Statement appended to the EIS, it the heat island effect was considered within the EIS, in the; under Land Compatibility (Section 6.4) and Air quality and climate (Section 7.1). These sections discuss that the heat island effect in combination with lessened grazing pressure can have beneficial effects for agriculture on the Subject land, by lessening the climate extremes under panels, increasing humidity, improving soil health (Quentin Lambert, 2021) and providing a shelter for grazing animals. This is the basis of 'agrivoltaics'; the combination of solar farms with agriculture., making use of land between and beneath panels for production purposes. It is more common outside of Australia but is becoming a more common consideration for new solar projects in NSW (pers. comm B. Marshall NGH).

Specific to horticultural and cropping operations, the Large scale solar guideline (DPE, 2022a) recommends a 30m set back to mitigate any heat island effect on neighbouring operations. Specific to the Glanmire Solar Farm Project, in consideration of the indicative layout and particularly the perimeter road and planting proposed, the 30m set back distance from panels is as follows:

- North boundary: the 30m is fully contained within the Subject land.
- East boundary: the 30m is fully contained within the perimeter road (10m) + screen planting (5m) + Brewongle Land road reserve (20m) = 35m.
- South boundary: the 30m is fully contained within the perimeter road (10m) + screen planting (10m) + southern planting area (20–300m) = over 40m.

The western boundary set back is less than 30m but includes an intervening perimeter planning, as follows:

- West boundary, northern section: the 30m is mostly contained within the perimeter road (10m) + screen planting (10m) = 20m. **The There is a residual width is of 10m for a distance of 1,150m along this boundary**.
- West boundary, southern section: the 30m is mostly contained within the perimeter road (10m) + screen planting (5m) + existing track on neighbouring property (10m) = 25m. **There is a residual width of 5m for a distance of 830m along this boundary**.

Any heat island effect from the solar infrastructure in these locations is considered highly likely to be mitigated by the screen planting proposed on the Subject land. Like solar panels, the perimeter planting will affect the micro climate around the plantings, producing shade, improving soil health, providing some protection from temperature and strong winds, particularly, in the extremes of winter and summer. The height profile of the tree planning once mature can be seen to far exceed that of the solar panels Figure 4-2. These micro climate effects are not anticipated to have any adverse impact on neighbouring land uses which include grazing and some cropping activities.

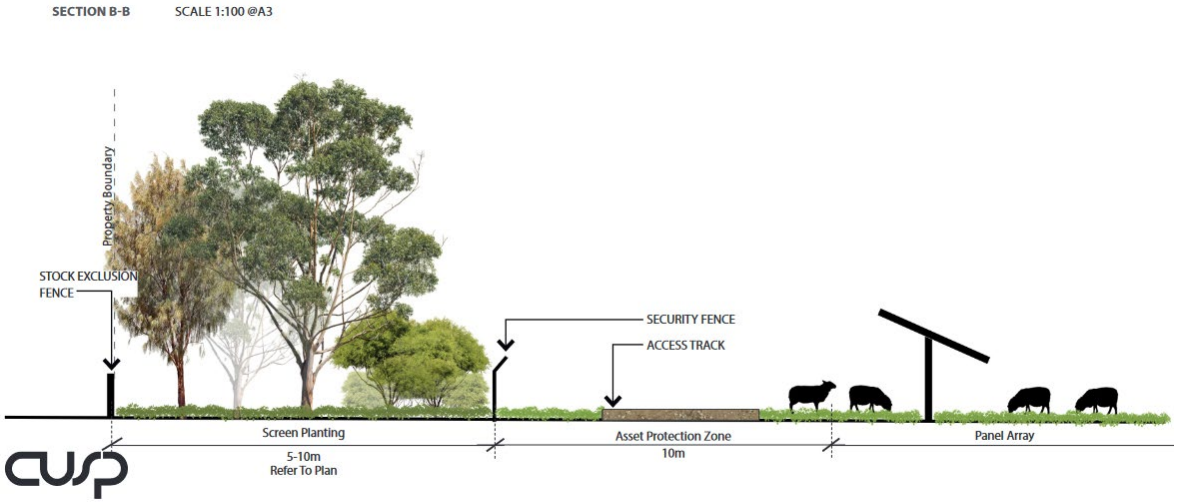


Figure 4-2 Landscape plan extract Section BB; western boundary. As presented in Appendix A of the Visual Impact Assessment

B. Land classification process

Issue summary

The site is mapped in part as Class 3 high capability land under the SEED mapping regime, being important agricultural land requiring a level 3 detailed assessment in terms of site selection for a solar farm.

Not satisfied with Applicant's classification of land category; made up facts about the site to suit their agenda.

Suggests the site is proven cultivation land, classified by NSW Planning as category 2–3 by independent agronomist D. Harbison and with a history of over 100 years of demonstrated productive cultivation land and should not be used for larger solar development.

Suggests the 'Check Sites' selected in the Agriculture Impact Study not representative; they are typically around dams or gateways with high traffic areas and where subsoils have been brought to the surface to build dam walls.

Submission reference

SE-52839979, SE-52839973, SE-52828464, SE-52817238, SE-52817208, SE-52526207, SE-52498712, SE-52497487, SE-52827457, SE-52397473, SE-52276223, SE-52271982, SE-52184710, SE-52163225, SE-52082474, SE-52846213, SE-52571457, SE-51123212, SE-52621707, SE-52633987

Glanmire Solar Farm Project response

Methods

The fact that the site is site is mapped in part as Class 3 high capability land under the SEED desktop mapping has caused a large amount of confusion regarding this issue within the community. Under the new guidelines, DPE require land classed as 4 or higher to be verified by soil surveys to achieve more certainty about specific site conditions.

In the assessment presented in the EIS, the reason there were more Class I - Detailed sites and Class III – Lab analysed sites was to ensure at least 3 representative sites of the dominant soil type that has undergone lab analysis. The dominant soil was a Sodosol, and 3 Sodosols were lab analysed, with an additional 1 site lab analysed for the subdominant Chromosol. This is in line with well accepted soil survey practices, though not required in the guidelines. Specific to check sites, these were not selected but were observation points and do not serve to skew the results as an appropriate number of formal soil survey sites had already been selected.

It is noted that, in the assessment presented in the EIS, the Applicant's consultants (SLR and Minesoils) both reached different conclusions when applying and interpreting the soil assessment results; these differences of opinion are clear in the EIS, which sought to take a conservative interpretation of the data collected. Different soil survey and analysis approaches were also recommended through the EIS submissions phase and through an independent review provided by the DPE. This submissions listed above all queried the survey methods and / or results.

To resolve this issue, as part of this Submissions report, the Applicant has adopted a much more intensive study in consultation with DPE, addressing concerns raised in relation to the frequency and distribution of soil survey locations (now more sites and more evenly distributed across the Study Area), type of soil profile assessment (now includes excavated backhoe pits in addition to push tube core sampling) and type of analysis (increased lab analysis).

The new report is appended as Appendix F and provides further certainty on this matter. It includes and updated assessment of:

- Impacts on important agricultural land (LSC classes 1-3).

- Temporary and permanent changes to land being used for agriculture.
- Temporary and permanent impacts on agricultural productivity.
- Impacts to support services, regional industry and infrastructure.

Results

It is noted that the results differ to the earlier assessment as follows:

- The Glanmire Solar Farm project impacts on the follow LCS classes:
  - LSC class 3 = 40.6 ha (an increase of 40.6 ha and representing 22% of the Study Area).
  - LSC class 4 = 132.9 ha (a decrease of 39.1 ha).
  - LSC class 5 = 12.6 ha (a decrease of 1.4 ha).

This is different to the findings presented in the EIS, as specified in brackets above. The updated mapping is provided as

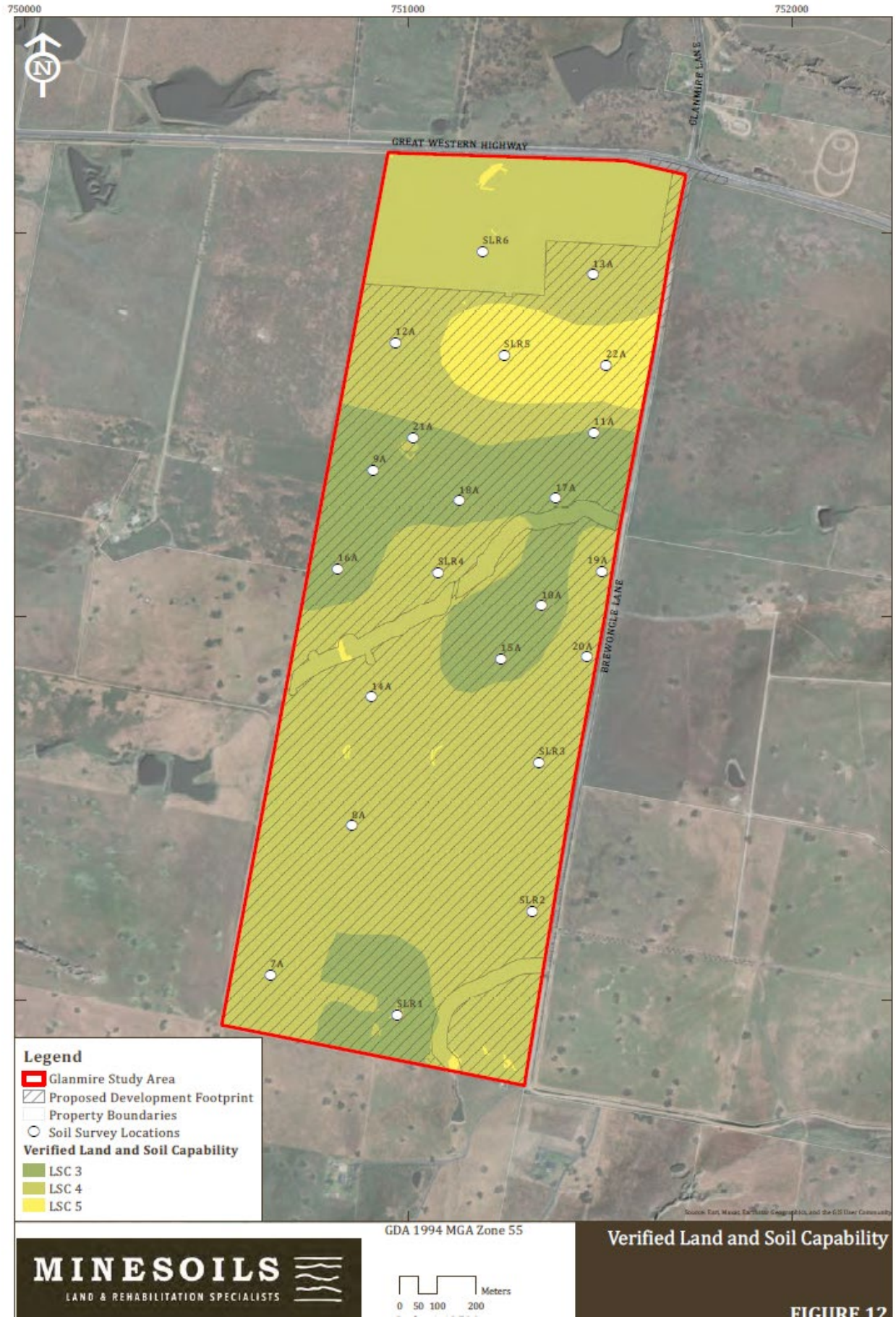

750000
751000
752000
GREAT WESTERN HIGHWAY
GLANMIRE LANE
BREWONGLE LANE
SLR6
13A
12A
SLR5
22A
21A
11A
9A
18A
17A
16A
SLR4
19A
10A
15A
20A
14A
SLR3
8A
SLR2
7A
SLR1
Legend
Glanmire Study Area
Proposed Development Footprint
Property Boundaries
Soil Survey Locations
Verified Land and Soil Capability
LSC 3
LSC 4
LSC 5
GDA 1994 MGA Zone 55
Meters
0 50 100 200
MINESOILS
LAND & REHABILITATION SPECIALISTS
Verified Land and Soil Capability
FIGURE 12

Figure 4-3, showing the additional survey effort (sampling sites) and Table 4-1 shows the reasoning based on the soil sampling.

The updated assessment also takes into account the permanent removal of 0.5 ha of arable land within the Study Area from agricultural land use following the life of the Project (the substation asset which would become the property of Essential Energy and may be retained after site decommissioning. The updated assessment concludes that the permanent agricultural economy productivity impacts of this asset equate to $326 per year following the life of the Project.

The updated assessment includes additional soil and water protection measures (in greater detail than those included in the EIS and now carried over as more detailed Project commitments) as well as additional rehabilitation / reversibility commitments. Land use conflict risk assessment results remain unchanged to those included in the EIS.

Conclusion of updated soils assessment

The updated LSC mapping represents a substantive change to the mapping presented in the EIS which stated no LSC class 3 land would be impacted by the Project. The new conclusions of this report are based on a much higher level of survey than would typically be applied. The updated study provides further certainty on this matter including a strong basis for future management and eventual rehabilitation actions proposed as part of the Project.

There is a high level of certainty about the status of agricultural resources and enterprises in the Study Area, locality and broader region, based on the soil survey and site verification assessment undertaken, consultation and desktop studies carried out. Further, there is a high level of confidence regarding the Project activities, surface disturbance requirements and commitments to returning land to pre-disturbance agricultural status following the life of the Project.

Based on these factors, the impacts on agriculture as a result of the Project are determined to be generally minor, temporary, and limited to the development footprint. These impacts can be summarised as the following:

- Temporary removal of 179 ha of arable land within the Study Area from agricultural land use for the duration of the Project.
- Temporary removal of potential agricultural primary productivity to the estimated value of up to $116,259 per year for the duration of the Project.
- Temporary impacts on soil resources and LSC within the Study Area where surface disturbance occurs.

Due to the substation infrastructure remaining as a permanent feature (0.5 ha of the Study Area) following the Project, the minor permanent impacts as a result of the Project consist of the following:

- Permanent removal of 0.5 ha from agricultural land use.
- Permanent removal of potential agricultural primary productivity to the estimated value of up to $326 per year.
- Permanent impacts on soil resources and LSC over 0.5 ha, noting permanent impacts to LSC 3 are anticipated to be minimal based on the indicative layout presented.

The temporary and permanent impacts on agriculture listed above are considered a negligible impact in the context of the gross commodity values and land use coverage of the agricultural industries operating within the Bathurst Regional Council LGA. Given the nature and scale of the established agricultural industries within the region and wider state, there will be no impact to critical mass thresholds of agricultural enterprises needed to attract and maintain investment in agricultural industries and infrastructure. Further, at the scale of the enterprises operating within the Study Area, impacts are considered offset as the involved landowner would be financially compensated.

Mitigation of impacts

Updated mitigation measures and management recommendations have been provided as part of the updated Soil and Agricultural Impact Assessment (Appendix F) to eliminate the permanent risks and control the temporary risks of the Project on land and soil resources. These are now included in Appendix B of this report. The salvage of topsoil material for re-use purposes combined with sound erosion and sedimentation management practices during construction, operational and decommissioning phases of the Project, will ensure rehabilitation requirements are met and 179 ha of the 179.5 ha of land being disturbed is returned to a pre-disturbance agricultural status.

Table Verified Land and Soil Capability [6]

		Hazard Criteria								
		1	2	3	4	5	6	7	8	Overall
		Water erosion	Wind erosion	Structure	Acidity	Salinity	Water-logging	Soil depth	Movement	Class
SLR1	Mottled Eutrophic Brown Chromosol	3	3	3	3	1	3	1	1	3
SLR2	Eutrophic Mottled-Subnatric Grey Sodosol	3	3	3	4	1	4	1	1	4
SLR3	Eutrophic Mottled-Subnatric Grey Sodosol	3	3	3	3	1	4	1	1	4
SLR4	Mottled-Sodic Eutrophic Brown Chromosol	2	3	3	3	1	4	1	1	4
SLR5	Mottled Eutrophic Grey Chromosol	3	4	1	5	1	3	1	1	5
SLR6	Eutrophic Mottled-Subnatric Brown Sodosol	3	3	3	4	1	3	1	1	4
7A	Haplic Eutrophic Red Chromosol	3	4	3	4	1	2	1	1	4
8A	Eutrophic Mottled-Subnatric Brown Sodosol	3	4	3	4	1	4	1	1	4
9A	Mottled Eutrophic Brown Chromosol	3	3	3	3	1	2	1	1	3
10A	Mottled Eutrophic Red Chromosol	3	3	3	3	1	3	1	1	3
11A	Mottled Eutrophic Brown Chromosol	3	3	3	3	1	3	1	1	3
12A	Eutrophic Mottled-Subnatric Red Sodosol	3	4	3	4	1	3	1	1	4
13A	Eutrophic Mottled-Subnatric Red Sodosol	3	4	3	4	1	3	1	1	4
14A	Eutrophic Mottled-Subnatric Grey Sodosol	3	4	3	4	1	4	1	1	4
15A	Eutrophic Mottled-Subnatric Grey Sodosol	3	3	3	3	1	3	1	1	3
16A	Brown Chromosol	3	3	3	3	1	2	1	1	3
17A	Brown Chromosol	3	3	3	3	1	3	1	1	3
18A	Brown Chromosol	3	3	3	3	1	3	1	1	3
19A	Brown Chromosol	3	4	3	4	1	3	1	1	4
20A	Brown Sodosol	3	4	3	4	1	3	1	1	4
21A	Brown Chromosol	3	3	3	3	1	3	1	1	3
22A	Brown Chromosol	3	4	1	5	1	3	1	1	5

[6] Given that the LSC verification assessment contains challengeable assumptions, Minesoils have used an overtly conservative approach. Specifically, based on buffering capacity elected for soil surface textures that inform the soil acidification LSC limitation, the study area is also very likely to contain additional areas of LSC 5 land.

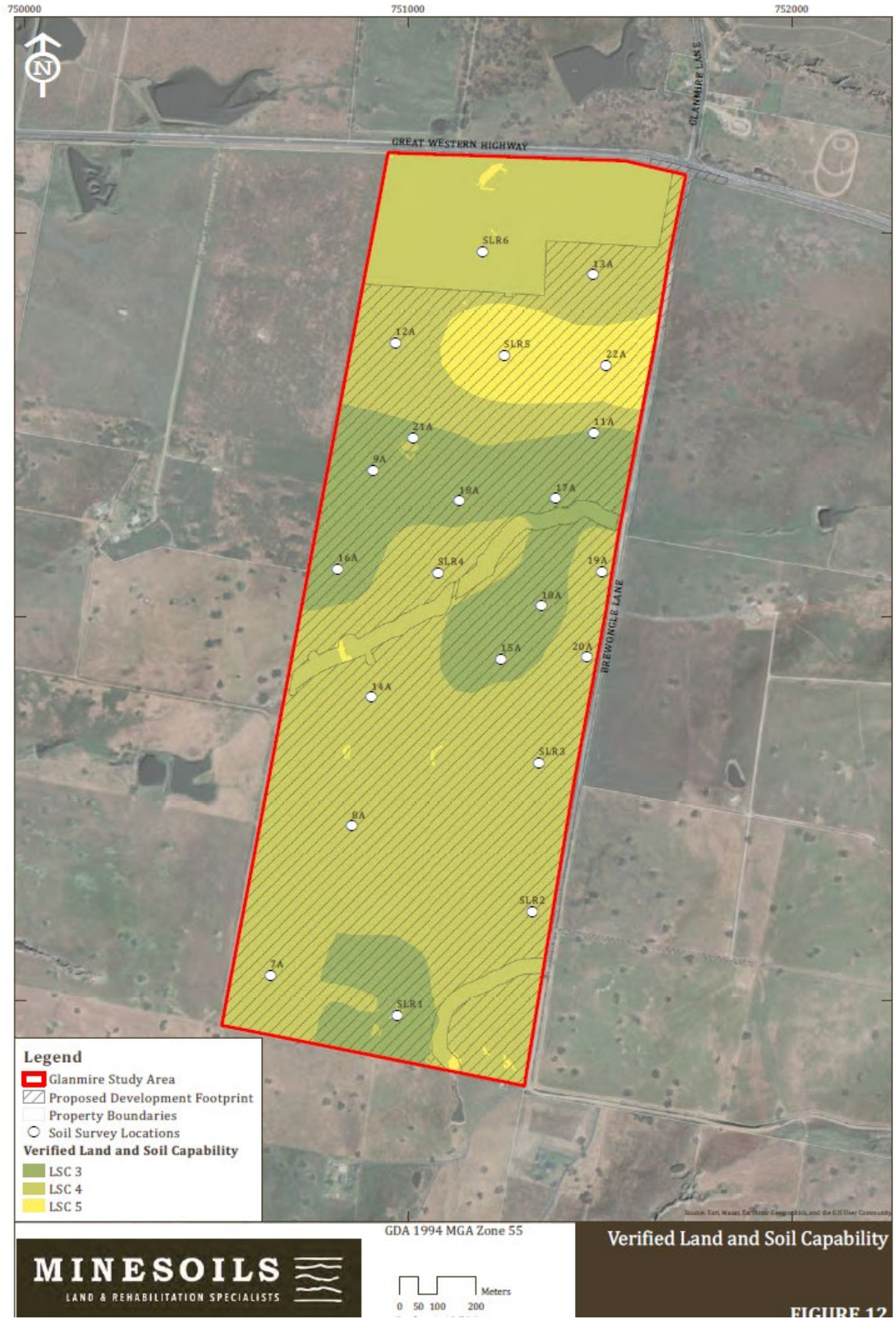


Figure 4-3 Ground truthed land soil classification, based on updated soil surveys and analysis

C. Long term effects on land and soil quality

Issue summary

There is no evidence of a similar Project that has lasted 40 years, to demonstrate that it does not negatively affect the land and soil quality over the entirety of that time.

Submission reference

SE-52276223, SE-52124466

Glanmire Solar Farm Project response

Certainly, in Australia, the long-term effects for utility solar farms are only gradually becoming more evidence based, since the first raft of utility scale solar project approvals around 2010-15. NSW solar projects are subject to operational monitoring and reporting as part of their approval and as such the evidence base is growing. There is a larger research base overseas from older projects that show soil heath can be improved in the microclimate that is created beneath solar panels (Quentin Lambert, 2021). The results however appear site specific, and they will depend on the management actions implemented to protect the land beneath the panels.

The Glanmire Project aims to retain a stable pasture ground cover beneath the panels, to protect the land and soil resource. It commits to monitor and manage the ground cover beneath the panels for the life of the project. The aim of this is to protect the soil and surface water resource although grazing will be permitted where this does not compromise the aim. The ground cover management plan would be an operational plan and would cover:

- Establishment techniques.
- Maintenance and monitoring requirements.
- Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements – i.e. A target of 70% live grass cover would apply to protect soils, landscape function and water quality.
- Contingency measures to respond to declining soil or groundcover condition. I.e., any grazing stock would be removed from the site when cover falls below the target of 70% live ground cover.
- Identification of baseline conditions for rehabilitation following decommissioning.

In this way, the soil resource will be monitored and protected as a part of operational activities, via an accompanying framework of management plans. The aim of the management planning is to be adaptive, so that if required further actions can be taken to ensure the aims of the plan are met. These mechanisms are used to address uncertainty.

D. Effects on food security

Issue summary

What effect will the Project have on food security; food security is important.

Submission reference

SE-52846215, SE-52840476, SE-52832712, SE-52831464, SE-52828726, SE-52828710, SE-52821957, SE-52819207, SE-52817238, SE-52816220, SE-52603207, SE-52498712, SE-52397473, SE-52271982, SE-52260517, SE-52159249, SE-52155498, SE-52084209, SE-52082474, SE-51893982, SE-51363997, SE-52827503, SE-52600457

Glanmire Solar Farm Project response

The Study Area has historically supported an intensive mixed crop and livestock farming system, typical of lands of similar agricultural potential in the locality and wider region. The Agricultural Impact Statement prepared as part of the EIS was prepared specifically to address the effect of removing the Project site from the rural economy. One of its key inputs is the soil survey and analysis undertaken on the site.

It is noted that the Applicant's consultants (SLR and Minesoils) both reached different conclusions when applying and interpreting the soil assessment results; these differences of opinion are clear in the EIS, which sought to take a conservative interpretation of the data collected. Different soil survey and analysis approaches were also recommended through the EIS submissions phase and through an independent review provided by DPE. Several public submissions also queried the survey methods and / or results.

To resolve this issue, as part of this Submissions report, the Applicant has adopted a much more intensive study to address the concerns raised. The new report is appended as Appendix F and provides further certainty. It includes an updated assessment of:

- Temporary and permanent impacts on agricultural productivity
- Impacts to support services, regional industry and infrastructure.

It concludes that there is a high level of certainty about the status of agricultural resources and enterprises in the Study Area, locality and broader region, and a high level of confidence regarding the Project activities, surface disturbance requirements and commitments to returning land to pre-disturbance agricultural status following the life of the Project. Based on these factors, the impacts on agriculture as a result of the Project are determined to be generally minor, temporary, and limited to the development footprint. These impacts can be summarised as the following:

- Temporary removal of 179 ha of arable land within the Study Area from agricultural land use for the duration of the Project.
- Temporary removal of potential agricultural primary productivity to the estimated value of up to $116,259 per year for the duration of the Project.
- Permanent removal of potential agricultural primary productivity to the estimated value of up to $326 per year.

The temporary and permanent impacts on agriculture listed above are considered a negligible impact in the context of the gross commodity values and land use coverage of the agricultural industries operating within the Bathurst Regional Council LGA. Given the nature and scale of the established agricultural industries within the region and wider state, there will be no impact to critical mass thresholds of agricultural enterprises needed to attract and maintain investment in agricultural industries and infrastructure.

E. Preserving agricultural land

Issue summary

The location is reserved for primary production and has been part of the "breadbasket" for NSW for the past 100+ years. It is very valuable and high demand land for agriculture. It has shown its productiveness through good harvests and livestock production in previous years. We need to protect arable land which is finite in Australia.

Development of solar in this context is a misuse / waste of prime agricultural land. Approval of this solar farm could lead to a trend of placing solar farms on prime agricultural land. Solar should be classified as industrial development.

Concern that the quality of land will degrade and will be unable to restored to current standard. There is no proper commitment to restore the land to its present condition after decommissioning.

Submission reference

SE-52840474, SE-52839979, SE-52839973, SE-52831468, SE-52828719, SE-52828715, SE-52828713, SE-52828711, SE-52828464, SE-52827499, SE-52827462, SE-52827457, SE-52821959, SE-52821957, SE-52819209, SE-52817243, SE-52817231, SE-52817227, SE-52817225, SE-52817219, SE-52817217, SE-52817215, SE-52817208, SE-52816231, SE-52816229, SE-52816227, SE-52816222, SE-52816220, SE-52816212, SE-52600457, SE-52546957, SE-52526207, SE-52504963, SE-52498712, SE-52467961, SE-52304709, SE-52276223, SE-52271982, SE-52260517, SE-52250471, SE-52163225, SE-52159249, SE-52155498, SE-52124466, SE-52106707, SE-52082490, SE-52082474, SE-52077235, SE-51516715, SE-52828462, SE-51506707, SE-51172228, SE-52827503, SE-52828457, SE-52846213, SE-52134292, SE-52816207, SE-52448710, SE-52571457, SE-52497487, SE-51123212, SE-52839985, SE-52831466, SE-52827501, SE-52826961, SE-52817235, SE-52603207, SE-52131526, SE-52827497, SE-52853466, SE-52840478, SE-52817213, SE-51098966, SE-52127477, SE-52840482, SE-52839989, SE-52839968, SE-52833957, SE-52833208, SE-52832712, SE-52832709, SE-52828726, SE-52828717, SE-52828707, SE-52827495, SE-52827467, SE-52827460, SE-52817238, SE-52816233, SE-52816209, SE-52415715, SE-52182457, SE-52136974, SE-51893982, SE-52846217, SE-52042957, SE-51098966, SE-52816218, SE-52828460, SE-52826959.

Glanmire Solar Farm Project response

The NSW Government's Large Scale Solar Energy Guidelines (DPE 2022) are clear that the early site suitability evaluation for solar farm sites must be considered in terms of protecting agricultural land. It states that a constraints mapping exercise should be carried out considering, among other matters, important agricultural land and soil capability of the subject land and surrounding land. Strong justification is required to impact important agricultural land; detailed assessment must be supported by onsite soil surveys and an analysis of the impact of the development on the rural economy. This was undertaken as part of the EIS and has been updated (Appendix F of this report) to provide increased certainty with regard to the productivity potential of the site.

Each project is considered on its merits by the DPE. There does not appear to be any intention to increase the placing solar farms on important agricultural land; the guidelines indicate the opposite. Impacts on important agricultural land require substantive justification.

RU1 rural land is considered appropriate for solar development in NSW. The local land use planning objectives of this zone are considered as part of the EIS assessment and are not considered inconsistent with solar development. Specific to agricultural productivity these include:

- Encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- Encourage diversity in primary industry enterprises and systems appropriate for the area.
- Minimise the fragmentation and alienation of resource lands.
- Minimise conflict between land uses within this zone and land uses within adjoining zones.

A key benefit of the Project is that the intrinsic land capability can be maintained throughout operation, maximising land use options at the completion of this Project. This is largely due to the low requirement for soil disturbance; around 4% of the soil surface would require substantial levels of disturbance for concrete footings, access tracks and mounting piers and well in excess of 90% of the Development Footprint will not be permanently disturbed once the construction remediation is complete. It will be subject to variable degrees of shading from mounted panels but is fully anticipated to retain ground cover vegetation. This maintains the natural resource base while encouraging a compatible industry. The land can be returned to agricultural use, after decommissioning, if that is the intension of the landowner.

Rehabilitation of the site after decommissioning, is secured in two ways by the Project. It has been included in land and lease agreement between the Project and the landowner. This is a private commercial agreement. Secondly, there is a clear commitment to restoring the site in the EIS. Section 3.4.4 details how decommissioning will take place. It states that all disturbed surfaces would be rehabilitated in consultation with landowner. A Decommissioning Environmental Management Plan would be developed to guide the activities involved. The objective is to rehabilitate the site to a safe, stable and non-polluting state, equal to or better than its current land capability class and consistent with future land use requirements. In terms of indicators, commitment S7 (provided in full below) references base line soil testing which has been undertaken and has included for each soil horizon the pH, exchangeable sodium, electrical conductivity and the ratio of Calcium and Magnesium, all directly relevant to soil fertility:

> *S7 A Rehabilitation Plan would be prepared to ensure the array site is returned to at least or better than pre-solar farmland and soil capability during the decommissioning stage. The plan would include:*
>
> - *Identification and quantification of potential soil resources for rehabilitation.*
> - *Optimisation and recovery of useable topsoil and subsoil during stripping operations.*
> - *Management of soil reserves in stockpiles so as not to degrade the resource.*
> - *Establishment of effective soil amelioration procedures to maximise the availability of soil reserve for future rehabilitation works.*
> - *Returning the land to its pre-solar capability and improving the current state of the land.*
> - *Development of completion criteria and monitoring reporting.*
>
> *The plan would be developed with reference to the base line soil testing and with input from an agronomist to ensure the site is left stabilised, under a cover crop or other suitable ground cover. The soil survey would be based on:*
>
> - *Australian Soil and Land Survey Handbook.*
> - *Guidelines for Surveying Soil and Land Resources.*
> - *The land and soil capability assessment scheme: second approximation.*

At the request of DPI, the Glanmire Solar Farm now commits to remove below ground infrastructure to a depth of 1000mm below ground level to better protect future land use opportunities, specifically cropping. This change is reflected in Section 3.1 of this Submissions Report; amendments to the Project and discussed in the agency response, Section 5.1.3.

Figure 4-4 Soil disturbance during construction, showing the soil profile and pasture remains largely unaffected (source DPE 2022)

F. Impact on agricultural livelihoods

Issue summary

Concern that agricultural livelihoods will be adversely affected.

Concern that the project infringes on the right to farm to such an extent that some agriculturalists would no longer be able to conduct their current farming operations. The NSW Right to farm policy states:

> *Land use conflict occurs when there is disagreement or dispute as to the use of land. The activities of one land user might be perceived to, or actually does, infringe upon the rights, values or amenity of another. In rural areas, land use conflicts can occur when agriculture impacts on residential uses, but conflicts can also arise when other land users impact on farmers.*

Submission reference

SE-52839973, SE-52831468, SE-52828710, SE-52821957, SE-52816222, SE-52816220, SE-52621707, SE-52467961, SE-52458978, SE-52415715, SE-52250471, SE-52184710, SE-52136974, SE-52127477, SE-51363997, SE-52448710, SE-52397473

Glanmire Solar Farm Project response

The intention of the Agricultural Impact Statement is to understand if the project would adversely affect surrounding agricultural resources, enterprises and dependent industries and enterprises. An updated assessment has been provided as Appendix F and includes a higher intensity of soil survey and analysis than was undertaken for the EIS. It references the carrying capacity of the land, considering its rainfall zone and stocking rate equivalents.

The investigation concludes that the temporary and permanent impacts of the Project on agriculture are considered a negligible impact in the context of the gross commodity values and land use coverage of the agricultural industries operating within the Bathurst Regional Council LGA. Given the nature and scale of the established agricultural industries within the region and wider state, there will be no impact to critical mass thresholds of agricultural enterprises needed to attract and maintain investment in agricultural industries and infrastructure.

The updated assessment summarises the agricultural impacts as:

- Temporary removal of 179 ha of arable land within the Study Area from agricultural land use for the duration of the Project.
- Temporary removal of potential agricultural primary productivity to the estimated value of up to $116,259 per year for the duration of the Project.
- Temporary impacts on soil resources and LSC within the Study Area where surface disturbance occurs.
- Permanent removal of 0.5 ha from agricultural land use (the substation area).
- Permanent removal of potential agricultural primary productivity to the estimated value of up to $326 per year (the substation area).
- Permanent impacts on soil resources and LSC over 0.5 ha, noting no permanent impacts to LSC 3 are anticipated.

The development of solar industry, compatible with adjacent agricultural activities, will reduce a minor number of agricultural jobs from the area, specifically those currently employed on the subject land. However, there is strong potential to provide new employment opportunities in the renewable energy sector, as well as the local initiatives that accompany the Project.

The updated agricultural assessment (Appendix F) also reviewed the Land Use Conflict Risk Assessment (LUCRA) required as part of an Agricultural Impact Assessment. The LUCRA aims to:

- Accurately identify and address potential land use conflict issues and risk of occurrence before a new land use proceeds or a dispute arises.
- Objectively assess the effect of a proposed land use on neighbouring land uses.
- Increase the understanding of potential land use conflict to inform and complement development control and buffer requirements.
- Highlight or recommend strategies to help minimise the potential for land use conflicts to occur and contribute to the negotiation, proposal, implementation and evaluation of separation strategies.

There are 24 risk items that were considered as part of the LUCRA. The mitigation measures and controls adopted by the Project reduce the level of risk for the majority of considered potential risks with complaints or conflict being managed within normal operations. There are no high-risk potential conflicts, however a number of items of potential conflict remain a moderate risk and may require further consultation and management in addition to standard operations. These are summarised below along with the specific Project controls to address them.

Table 4-1 LUCRA summary

Risk Item	Risk Reduction Controls
The infrastructure / workers onsite may ignite a fire that spreads to neighbouring land. Equally, agricultural operations on adjacent land may start a fire that may spread to other properties including the solar farm site.	Implementation of a solar farm BMP (Biodiversity Management Plan) would reduce the probability of solar farm operation starting a fire or a bush fire damaging the solar farm infrastructure. With the improvements to site access (site entrance and internal perimeter track network), APZ (Asset Protect Zone) setbacks to allow defensible space and emergency protocols, this risk is considered to be sufficiently reduced.
Constraint posed by power lines.	Within the Development footprint, underground cabling would be used and upon decommissioning, only those below 500mm would be retained, as directed by Department Primary Industries advice for other solar farms, so that subsurface agricultural activities can resume. No overhead lines are required for the Project within the Development footprint however, offsite transmission line refurbishment of Essential Energy assets between the site and Raglan substation may require additional lines and addition pole heights. Locating poles in consultation with landowners is required to reduce impacts of powerlines on agricultural operations and remove the risk to human life. The reconfiguration may provide some improvements to landowners where existing lines heights are a constraint.
Interference with agricultural management activities (weed control, harvest) on adjacent land. No equipment use on adjacent lands will be affected directly by the solar farm activities, either during construction, operation, or decommissioning. However, in relation to the offsite transmission line augmentation, it is noted that overhead power lines may restrict the size of agricultural equipment that can be used onsite. Even when on existing easements, overhead lines can be a constraint to moving equipment in the locality. Underground power lines and cables may restrict some ploughing, seeding or other subsurface activities. In addition to affecting operations, the consequences could be a severe health hazard as the lines carry electricity.	No overhead lines are required for the Project within the Development footprint however, offsite transmission line refurbishment of Essential Energy assets between the site and Raglan substation may require additional lines and additional pole heights. Locating poles and heights in consultation with landowners is required to reduce impacts of powerlines on agricultural operations and remove the risk to human life. The reconfiguration may provide some improvements to landowners where existing line heights are a constraint.

G. How agriculture will be retained

Issue summary

How will land be used during operation? How will agricultural yield be retained during operation?

Submission reference

SE-52504963, SE-52467961, SE-52127477.

Glanmire Solar Farm Project response

The operational solar farm may continue to have some level of grazing and income from this activity. However, it is important that the primary aim of the management of the land under the solar panels and around the array is to maintain a stable groundcover so as to protect soil and water resources. This protects the land capability and will ensure that weeds and erosion do not become established. In this context, the grazing is considered an appropriate fuel management strategy where it does not compromise the ground

cover management objectives. It will be subject to a high degree of monitoring to ensure it remains appropriate under different conditions (i.e., seasonal and climatic changes over the life of the project).

Grazing under and around utility solar farms is relatively new in Australia, but as Australian solar projects increase, greater consideration is being given to a more balanced land use equation between solar yield and grazing income and what this means for panel heights and row spacing. For the purpose of the Glanmire Solar Farm Project however, the assumption is that the solar yield is the clear priority.

H. Sheep grazing under the panels (Support)

Issue summary

Sheep are likely to be grazed under and around solar panels to ensure vegetation cover is managed appropriately. It is nice to see renewable energy Projects that facilitate the continuation of agriculture production simultaneously. Graziers in NSW have reported improved wool quality and higher wool yield for fewer sheep run under solar panels, due to increased shade, and condensation from panels.

Submission reference

SE-52506457, SE-51020724, SE-51208285, SE-52519217, SE-52839983.

Glanmire Solar Farm Project response

Although it is expected results will be site specific and be largely dependent on the management framework, there are expected to be benefits to grazing in and around panels. Some benefit is expected in climatic extremes in particular; in hot weather, evaporation is reduced increasing soil moisture and thereby pasture growth. In cold temperatures, the microclimate helps retain soil moisture at slightly increased temperatures. These factors are of benefit to sheep grazing.

Figure 4-5 Pasture responding to extra shade and water runoff in extreme drought conditions (source Clean Energy Council 2021, Australian guide to agrisolar for large scale solar)

Figure 4-6 Sheep grazing under panels (source Clean Energy Council 2021, Australian guide to agrisolar for large scale solar)

I. Capability of land (Support)

Issue summary

The entire Study Area is considered to have moderate to moderately low agricultural capability according to definitions given in The Land and Soil Capability Assessment Scheme: Second Approximation (OEH, 2012). This allays concerns of the Project removing high quality agricultural land from production.

Agricultural production doesn't always trump other forms of land use. Agriculture is making way for more important needs such as residential land, small acreages, sport and recreation, schools and colleges, commercial premises, and forestry in our region. Generating electricity is as important as all these.

Submission reference

SE-52519217, SE-52840484.

Glanmire Solar Farm Project response

These points agree with the findings of the environmental assessment team in relation to the Project:

- It can be developed without permanent impacts to important agricultural land.
- It would have no permanent impact on surrounding agricultural resources, enterprises and dependent industries and enterprises.
- It aligns extremely well with federal, state and local policies to increase the grid's transition to renewable energy generation.

4.3.2. Visual impacts

A. Loss of visual amenity for neighbours

Issue summary

Concern there will be a loss of visual amenity for neighbours.

Submission reference

SE-52827495, SE-52817221, SE-52816212, SE-52526207, SE-52504963, SE-52415715, SE-52260517, SE-52184710, SE-52131526, SE-52448710, SE-52127477.

Glanmire Solar Farm Project response

IRIS Pty Ltd undertook a LVIA for residential dwellings with reference to the Large-Scale Solar Energy Guideline and the accompanying Technical Supplement – Landscape and Visual Impact Assessment (DPE, 2022a) & (DPE, 2022b). This report is attached as Appendix D of the EIS. The technical supplement outlines how visual impacts from residential dwellings should be assessed in relation to solar farm proposals and allows for a quantitative ranking of visual impact. The first step is to undertake a desktop assessment of visual impacts that determine which dwellings require detailed assessment based on the dwellings distance from the site and elevation in the relation to the site. Based on the desktop assessment methods prescribed in the Technical supplement 32 existing dwellings required detailed assessment, an additional three future dwellings were included in detailed assessments as advised by near neighbours.

Following the detailed assessment of the dwellings the Project has incorporated design and layout advice from the visual assessment team specific to neighbouring views, as well as designed landscaping treatments which form commitments of the Project for the life of the Project. For neighbours, these measures effectively reduce the visual impact potential of the Project to a low or very low level, as follows:

- Very low visual impacts on six surrounding dwellings; three of these will be reduced further as mitigation plantings become effective.
- Low visual impacts on three residences; reducing to very low or no impact as mitigation plantings become effective.

Specific photomontages have been prepared for neighbours so they can understand the views towards the Project. For privacy reasons not all have been included in the visual assessment that was publicly exhibited.

As impacts cannot be entirely avoided, the Applicant has extended themselves to involve near neighbors in the assessment process and commits further to develop specific treatments where warranted. An existing Project commitment is to:

> *V2 Engage with affected residents as part of the development of the final Landscape Management Plan, seeking their input on key decisions that affect their residential views. An independent facilitator would be selected if preferred by residents.*

B. Impact on lifestyle block values

Issue summary

Concern there will impacts on lifestyle blocks / values. Placing a solar farm in this site will take away the visual appeal of a rural farm area.

Submission reference

SE-52833208, SE-52819207, SE-52637003, SE-52127477, SE-52828707, SE-52840478, SE-52839979, SE-52828719, SE-52828711, SE-52415715, SE-52250471, SE-52448710, SE-52571457, SE-52827465, SE-52846215.

Glanmire Solar Farm Project response

The change in land use from rural land has been a key concern raised by many submissions, linked strongly to the loss of visual amenity for the community. This was an issue identified in early surveys and consultation activities. This can be greater concern for lifestyle blocks, valued more for visual amenity than production value.

The assessment of the Project's impact on views and the local visual amenity of the area was undertaken by IRIS Pty Ltd and applied best practice guidance, particularly they referenced draft and final DPE guidance as it became available in order that a standardised and repeatable tool could be applied to this Project. The assessment characterized the site as having low scenic quality. This is with reference to sample imagery in the DPE guideline and not a reflection of the value placed on the views by individuals. The most relevant samples from the guideline are shown below.

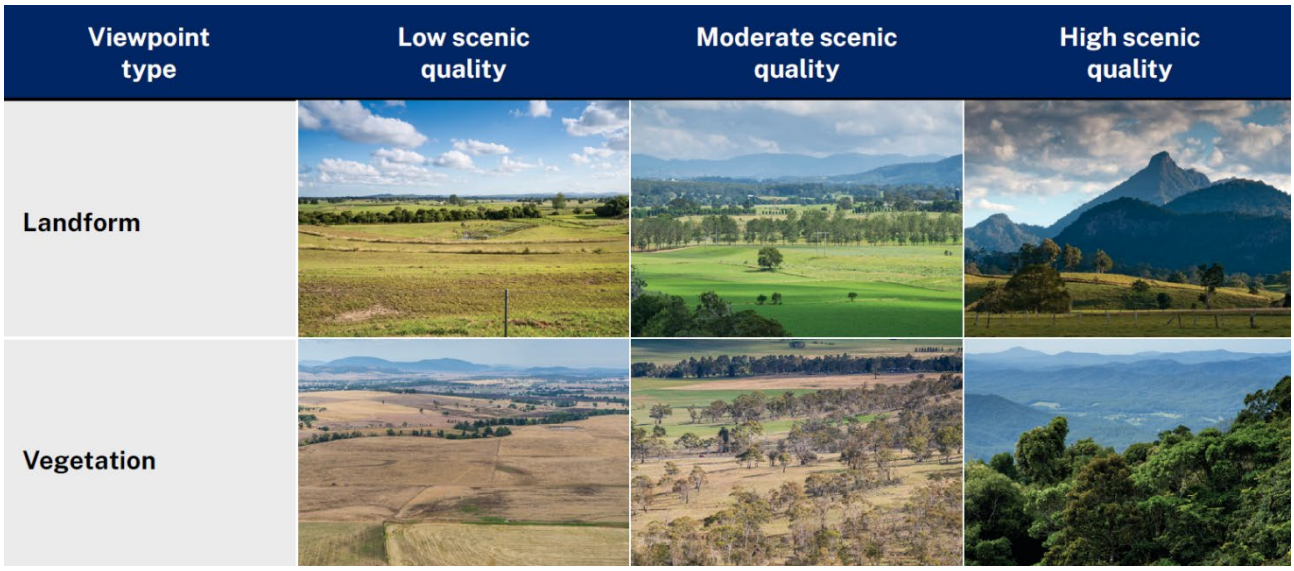


Figure 4-7 Visual reference for scenic quality values, DPE 2022; Large-scale Energy Guideline technical supplement

To address the values expressed during community consultation, the 'sensitivity' rating was increased in the tool to 'moderate'. The assessment also took into account sites where future dwellings were proposed (not approved) in order to ensure that the Projects impacts would be properly understood and mitigated appropriately in these areas.

The overall result was no more than low landscape character impact on the Bathurst Plains Landscape Character Area. The final infrastructure layout and landscape plan includes setbacks from the highway, an additional array exclusion zone and specific planting areas. As the planting develops, a positive impact on local scenic character would result. This is a consequence of the revegetation of two streams within the site, and the planting of hundreds of scattered trees around the perimeter of the site. Therefore, the impact on surrounding lifestyle blocks and the rural character they enjoy would be low and in some areas the landscape character would be enhanced.

Other than the visual impacts discussed specifically above, the solar farm would have very little direct effect on lifestyle blocks and their values. During construction, traffic, noise, dust will be temporary, and these

issues will be reduced due to the short distance of the site from the Great Western Highway; Brewongle Lane would be sealed to the site access point which will also reduce dust and traffic impacts. During operation, there would be minimal activities on the site. It will only require 1–3 full time employees to operate the solar farm. Noise and traffic impacts will be very low.

C. Effect on public viewpoints

Issue summary

Concern that the Project will be visible from public viewpoints including the Bathurst town entry and exit.

Submission reference

SE-52839977, SE-52828726, SE-52828715, SE-52828464, SE-52827467, SE-52827457, SE-52817243, SE-52817238, SE-52817231, SE-52817227, SE-52817221, SE-52817215, SE-52816222, SE-52504963, SE-52467961, SE-52127477, SE-52084209, SE-52082474, SE-51363997, SE-52839968, SE-52077235.

Glanmire Solar Farm Project response

The impact of the Project was assessed for its effect on public view points ('views from the public domain'); four viewpoints were selected as representative of the range of views to the project. These are all from public roads; Brewongle Lane, Great Western Highway (two locations) and Mersing Road. Without mitigation, all were assessed as low or very low impact, with the exception of the site access road; Brewongle Lane. No other public view points would have a higher level of impact.

The Project's location at the 'gateway to Bathurst' has been one of the clearest defining features in terms of informing the design of the Project. The Project has incorporated design and layout advice from the visual assessment team as well as landscaping treatments. This includes a 300m set back from the highway and tree planting areas (enhancing existing areas as well as perimeter planting). Together, these measures effectively reduce the visual impact potential of the Project a low level. Specifically, there would be:

- Very low visual impact on views east bound from the Great Western Highway - with mitigation this reduces to no impact in the long term.
- No visual impact from the Great Western Highway on the approach to Bathurst - due to set backs and an array exclusion zones proposed.
- A moderate visual impact on views from Brewongle Lane, reducing to low visual impact with the implementation of the landscape plan.

In consideration of local character impacts, the assessment notes no mitigation is formally required [due to the low level of impact] but it is noted the mitigation that is proposed may enhance landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

D. Effect on tourism

Issue summary

Concerned that having a solar farm will have negative impact on tourism; the area will be visually unpleasant to tourists who come here to enjoy rural vistas. The views of treeless plains are highly valued.

Submission reference

SE-52828707, SE-52827495, SE-52817233, SE-52831468, SE-52831466, SE-52828723, SE-52828717, SE-52828710, SE-52827501, SE-52827492, SE-52136974, SE-52131526, SE-52082474, SE-52458978.

Glanmire Solar Farm Project response

These submissions primarily raise the impact on local visual amenity, in consideration of impacts on tourism. The visual impact assessment considered impacts on local scenic character, public view points and particularly views for motorists west bound from the Great Western Highway travelling to Bathurst; this is considered to be the most appropriate way to consider visual impacts that may affect tourists visiting the area.

Setbacks have been included as part of the Project to ensure that operational views will be minimised for tourists and other motorists travelling past the site. This includes a 300m set back from the highway and tree planting areas (enhancing existing areas as well as perimeter planting). Temporary visual impacts will however result during the construction stage, when the compound will be visible from the highway. As stated above (Section 4.3.2), the visual impact mitigation that is proposed may enhance landscape character in some locations due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

Regarding grasslands, it is noted that, while largely cleared, the Subject land is derived from an open woodland vegetation type; several trees from this community remain onsite. The Landscape Concept Plan details locally appropriate tree and shrub species and planting density required to maintain this character. The intention of the plan is to soften not remove impacts of the site's infrastructure. This is done specifically to be in keeping with the natural vegetation distribution and character of the area and so that more expansive views are still retained in gaps in the vegetation.

Additional potential impacts on tourism were also investigated including:

- Potential to exacerbate pressures on accommodation used by tourists: An Accommodation and Employment Strategy could address housing concerns as part of the detailed development of the Project. This is only relevant to the construction stage.
- Tourism infrastructure related to agricultural enterprises (e.g., wineries or farm stays): No tourism infrastructure occurs within the vicinity of the Project upon which agricultural enterprises are reliant will be impacted.

On balance, there is considered to be low potential for adverse effects on tourism.

E. Effectiveness of tree screening

Issue summary

Not convinced by the visual impact assessment conclusions; there is no way this solar plant can be hidden. Trees cannot act as an effective barrier for visual impacts.

Proposed vegetation buffer will take a long time to grow and is insufficient. There is no mention of taking care of the vegetation buffer and irrigating it.

Submission reference

SE-52832709, SE-52828723, SE-52817233, SE-52526207, SE-52415715, SE-52276223, SE-52184710, SE-52127477, SE-52124466, SE-52084209, SE-52082474, SE-52131526, SE-52182457, SE-52827465, SE-52641459, SE-52260517, SE-52600457.

Glanmire Solar Farm Project response

Confidence in how planting will reduce views of infrastructure.

Three dimensional modelling, considering the proposed layout and the site's terrain in combination with an artists impressions have been used to produce accurate representations of how vegetation of a certain height, planted at specific densities may affect views from specific locations toward the solar farm.

The infrastructure is not proposed to be hidden from view. The intention is not to hide the infrastructure but rather to soften the view of the infrastructure, reducing the contrast with the existing landscape and retaining some more expansive views to areas beyond the site. Most plantings proposed in the Landscape Concept Plan are 10m or more wide. The wider belts of planting allow a more structured vegetation outcome, including trees and shrubs at different heights and better replicates a natural woodland structure. A more minimum treatment however is proposed for Brewongle Lane; a linear planting with trees spaced approximately 10m apart. Refer to Figure 4-8 and Figure 4-9.

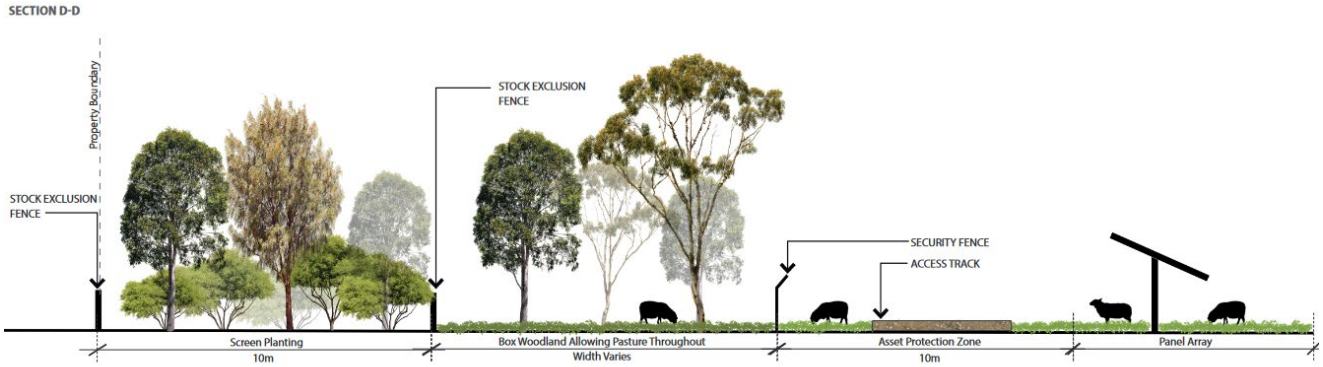


Figure 4-8 Proposed structure of planting at the southern site boundary (Section DD of the Landscape Concept Plan)

Figure 4-9 Short term results expected on Brewongle Lane (extracted from the Landscape Concept Plan)

Because of the setbacks included in the layout, for the Glanmire solar farm, the screening mitigation is not required to achieve significant impact reduction in most locations; visual impacts at dwellings are not greater than low, without mitigation and views from the highway have also been assessed as very low. The assessment concluded low landscape character impact and stated that while no mitigation was required, that the mitigation proposed may enhance landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

Confidence in survival of plantings for the life of the Project

Reliance on visual screen plantings as a mitigation strategy does, however, have risks. The Bathurst area has been subject to drought and flood conditions in recent years which would be expected to delay the response of vegetation growth. Central to managing this Project commitment is monitoring the vegetations growth and having proactive triggers for follow up maintenance actions. The successful implementation of Project

commitments is a requirement for the approved Project and will be subject to auditing and noncompliance actions and penalties where these are not met.

Specific strategies to maximise the success of plantings are included in the Landscape Concept Plan prepared for the Project. It details of the locally appropriate species and planting density required. It aims to apply lessons learned at other solar farms specifically regarding establishment and maintenance practices, including:

Establishment

- Soil to be ripped, ameliorated and cultivated.
- Planting areas to be covered with 100mm thick well composted organic mulch (will act as weed suppressant).
- Planting areas to be closed off from grazing pressure with stock fencing.
- Plants will be 50mm x 50mm tubestock or similar.

Monitoring and maintenance

- Activities during establishment would include watering, weed management and replacement of dead plant stock as required.
- 12 week establishment followed by a 21 month monitoring period (total of 24 months).
- Activities during the monitoring period would include weed management, topping up of mulch as required and replacing dead plant stock as soon as practicable.

It is also noted that climate extremes experienced recently in NSW have led to delays in screen establishment at two NSW solar farm that NGH knows of (drought in 2020 and flooding in 2023). It is also acknowledged that planting tree species in some areas can be difficult (in natural grasslands or very exposed conditions). The outlook at the Glanmire site is that the next years may be drier than normal, but the site is not considered problematic in terms of exposure and additional watering is an easy management tool to implement (more so than addressing waterlogging impacts).

NGH and IRIS have experience in the preparation of Landscape Plans for screening and have observed mixed results for some Projects. Key learnings based on their experience are that:

- Planting should be undertaken during the appropriate season and when there are favourable conditions for the successful establishment of the planting. Planting out of season and during unfavourable conditions will result in poor long-term outcomes and a less sustainable planting.
- Planting before and / or during other construction activity often results in damage to planted areas by contractors working near to or around the landscape works. While areas can be fenced off, this is difficult for linear planting areas, and areas within the site, where access cannot be guaranteed and there is a large area of interface with other contractors and trades. (Early establishment of the vegetation is not considered necessary on this Project considering the relatively low visual impacts).
- Improved outcomes can be achieved by increasing the frequency of monitoring. This allows better ability to maximise appropriate seasonal windows for action such as supplementary planting to replace mortalities, weed control etc.

This experience is being applied to the Glanmire Solar Farm. Adaptive management mechanisms will ensure that monitoring results are back into maintenance actions to ensure the fastest establishment of screening vegetation.

F. Temporary compound needs to be hidden

Issue summary

The temporary construction compound is on high land. It needs to be better hidden.

Submission reference

SE-52182457

Glanmire Solar Farm Project response

The land chosen as temporary construction compound is close to the access point for the site and will enable a speedier construction timeframe than using land further south on the site which will eventually have solar panels located on it. The view of the compound would be restricted to the construction phase of approximately 12 months.

It is possible that temporary barriers could be installed along the Great Western Highway to obscure some views of the construction compound during construction however, this is not currently proposed.

G. Objection to lights and CCTV monitoring

Issue summary

Object to having flood lights and security cameras located on the site.

Submission reference

SE-52526207, SE-52184710.

Glanmire Solar Farm Project response

Security cameras will be positioned at entrance gate, and throughout solar array area for continuous monitoring by site staff. They would be positioned on approximately 5m high poles. The aim of security cameras is to ensure the security of the solar farm and be able to remotely monitor the area at night time. The use is limited to the area within the solar farm and is not intended to be used for monitoring areas outside the site.

Night lighting will be required for maintenance and emergency purposes only. They are not intended to be used as permanent lighting and will only be used as per need basis. They would be designed to reduce disturbance to neighbouring properties, as such it would be low intensity lighting (except where required for safety or emergency purposes) and would not shine above the horizontal.

H. Glare risk to motorist

Issue summary

The solar farm poses risk of glare to motorists on the highway and on Brewongle Lane.

Submission reference

SE-52827501, SE-52816233, SE-52526207, SE-52152471, SE-52127477, SE-52124466, SE-52091538, SE-52827465.

Glanmire Solar Farm Project response

Solar Panel Glare occurs when an observer sees a direct reflection of the sun caused by a specular (mirror-like) reflection from the surface of one or more solar panels. As the tracking system positions panels in a way that the sun's rays are perpendicular to the panels at all times, the risk of glare (other than very low angles) to the areas other than the incoming direction of solar rays is very minimum.

The Solar Glare Hazard Analysis Tool (SGHAT) was undertaken for Brewongle Lane, as it passes the site, and the Great Western Highway and extending 3km to the east and west. There is limited visibility from other roads surrounding the site and therefore no glare risk. There was no glare potential identified from Brewongle Lane or the Great Western Highway.

I. Impact on scenic quality

Issue summary

The Project will impact on scenic quality of area.

Submission reference

SE-52846217, SE-52817215, SE-52621707, SE-52526207, SE-52498712, SE-52458978, SE-52426488, SE-52415715, SE-52276223, SE-52106707, SE-52091538, SE-51516715, SE-51363997, SE-52816207, SE-52448710, SE-52571457, SE-52603207.

Glanmire Solar Farm Project response

Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. While it is a personal value, standardised assessment tools have been developed by DPE to assist the assessment and mitigation of impacts on scenic quality.

The scenic quality has been characterized as low for the Project. This is with reference to sample imagery in the DPE guideline and not a reflection of the value placed on the views by individuals (refer to sample images from the guideline used to assess this aspect in Figure 4-7).

The Project's assessment found:

- There would be a low magnitude of change to the landscape character.
- The area has moderate sensitivity to change.

The result is a low landscape character impact. It is noted that the assessment considered the values identified by the community and Council, increasing the viewer sensitivity rating from low to moderate, compared to the guidance described in the DPE technical supplement (DPE, 2022b). As such, taking into account local values, there is still found to be no significant impact on the scenic quality of the area from the Project.

J. Risk to airplanes

Issue summary

The Project will pose a risk to airplanes to and from Bathurst airport.

No consideration is given to the glint and glare impacts on Bathurst Airport now, or for the next 40 years of the proposed project as the airport expands, or the effect on the flying school or Bathurst Soaring Club.

Submission reference

SE-52426488, SE-52184710, SE-52127477, SE-52091538.

Glanmire Solar Farm Project response

The glare assessment shows clearly that solar farm does not produce red glare, which as potential to cause retinal burn (permanent eye damage). It can however produce yellow glare, which has potential to cause temporary after-image. Although the DPE Technical supplement requires assessment of glare from 1km of

the site, the Project has considered glare risk from up to a distance of 3km in the EIS and supporting glare assessment.

The Bathurst Regional Airport is located about 4.5km to the northwest of the Project site. Aircraft approach paths are assessed for glint and glare risk because this is considered to be the most critical stage of the flight. The Glare Gauge Solar Glare Analysis Tool used in the visual assessment includes a 2-mile approach tool for the purpose of assessing aircraft. The model used shows a scenario which exaggerates the potential for glare. The software is therefore likely to predict solar reflections over a larger area and for a greater length of time than would be experienced in reality. In this way conservatism is built into the approach. The analysis concluded that there is no glare risk to the Bathurst Airport.

Any expansion of the airport can be supported by updated glare modelling, if the extent or location of flight paths changes. In general, the panels can be said to be designed to absorb light and therefore reflections to the point of glare are not common. As the tracking system positions panels with respect to the sun's rays to optimise solar generation, this same system can be used to enforce operational restrictions that limit glare, where this is found to be required.

The flying school is understood to be attached to the airport and is therefore addressed. The Bathurst Soaring Club is located about 20km north of the Project. There is expected to be no impact on the club's activities.

K. Visual impacts of other Project components

Issue summary

LVIA did not take into consideration the other infrastructure, including the transformers and substation that will be considerably higher than the panels.

Did not consider the impact on the upgraded utility poles, which will likely be made of concrete and will be between 2m and 6m higher than the existing poles along the Great Western Highway

Submission reference

SE-52426488.

Glanmire Solar Farm Project response

All features of the Project that have the potential to cause a visual impact have been considered.

- The visual assessment (Appendix D1 of EIS) includes all onsite infrastructure, including the security fencing, substation and connecting transmission lines (underground), which are included in the 3D model that has been used for the preparation of photomontages and used for the magnitude analysis. Modelling this area considered a height of 3.5m, for all infrastructure in this area (including inverters, substation and operations buildings). It is noted that the substation would be a maximum of 5.5m tall and the operational maintenance building would be a maximum of 4m tall, however given the small area of land taken up by these features re-modelling of these heights would not result in a change in any visual impact assessments from any public or private viewpoint.
- A separate impact assessment has been undertaken specifically for the proposed offsite transmission line upgrade works (Appendix E of EIS). This element is related to the Project but would be undertaken by Essential Energy. It has been subject to a high level environmental assessment within the EIS and detailed assessment would be undertaken by Essential Energy when the design of the works is closer to completion.

The high level assessment concluded that the landscape character where the transmission line upgrade is proposed has a high capacity to absorb this visual change. This is because the works would be largely

located in existing easements containing transmission infrastructure. It is noted also that undulating hills and scattered trees in the locality which views from the eastern outskirts of Raglan (where a higher number of dwellings are located).

L. Incomplete consideration of future dwellings

Issue summary

This development, if approved would, restrict our future use of the site. We have an approved 4 lot subdivision. The Applicant has not considered the effect of the project on our proposed homes.

Submission reference

SE-52415715.

Glanmire Solar Farm Project response

The EIS is not required to consider potential unapproved dwellings. However, to address concerns raised by neighbours during consultation, we have endeavoured to include specific locations that were identified during the assessment; R44, 44b and 44c have been assessed for noise and visual impacts. In particular R44c refers to the submitters lots, R44 and R44b are associated with a separate landholder.

The submitter of this objection showed the visual impact subcontractor (IRIS Pty Ltd) two potential future dwelling locations. Of these locations, the most affected (44c) was identified in the LVIA. Photographs taken at this location were used to prepare a photomontage (permission to publish this image was withheld) and subsequently a 3D modelled image that was presented in the LVIA. This future house site was considered to be the most affected as it was located directly adjacent to the project boundary with no intervening landform or vegetation present. The view from this location was assessed in accordance with the Large-Scale Solar Energy Guideline Technical Supplement and a low visual impact identified (DPE, 2022b).

The second future dwelling site identified by the owner was located about 900 metres to the south of the project boundary. There was some intervening landform and vegetation between this location and the Project site. The Project has also been setback from the southern boundary of the Project site. This future house site has expansive views south and away from the project, which indicated that any view towards the site was most likely to be a secondary view. As views from other dwellings also to the south of the Project site, and closer (about 325 metres from the site boundary), were assessed as having low visual impact (refer to dwelling number R5 in Figure 4-10), this future dwelling site was eliminated from further consideration in the visual impact assessment.

Notwithstanding this, mitigation has been proposed, including linear tree planting and 10-metre-wide native screening vegetation, for the length of the project boundary with this property. This vegetation will, over time, reduce the visibility of the project from any future dwelling on this site.

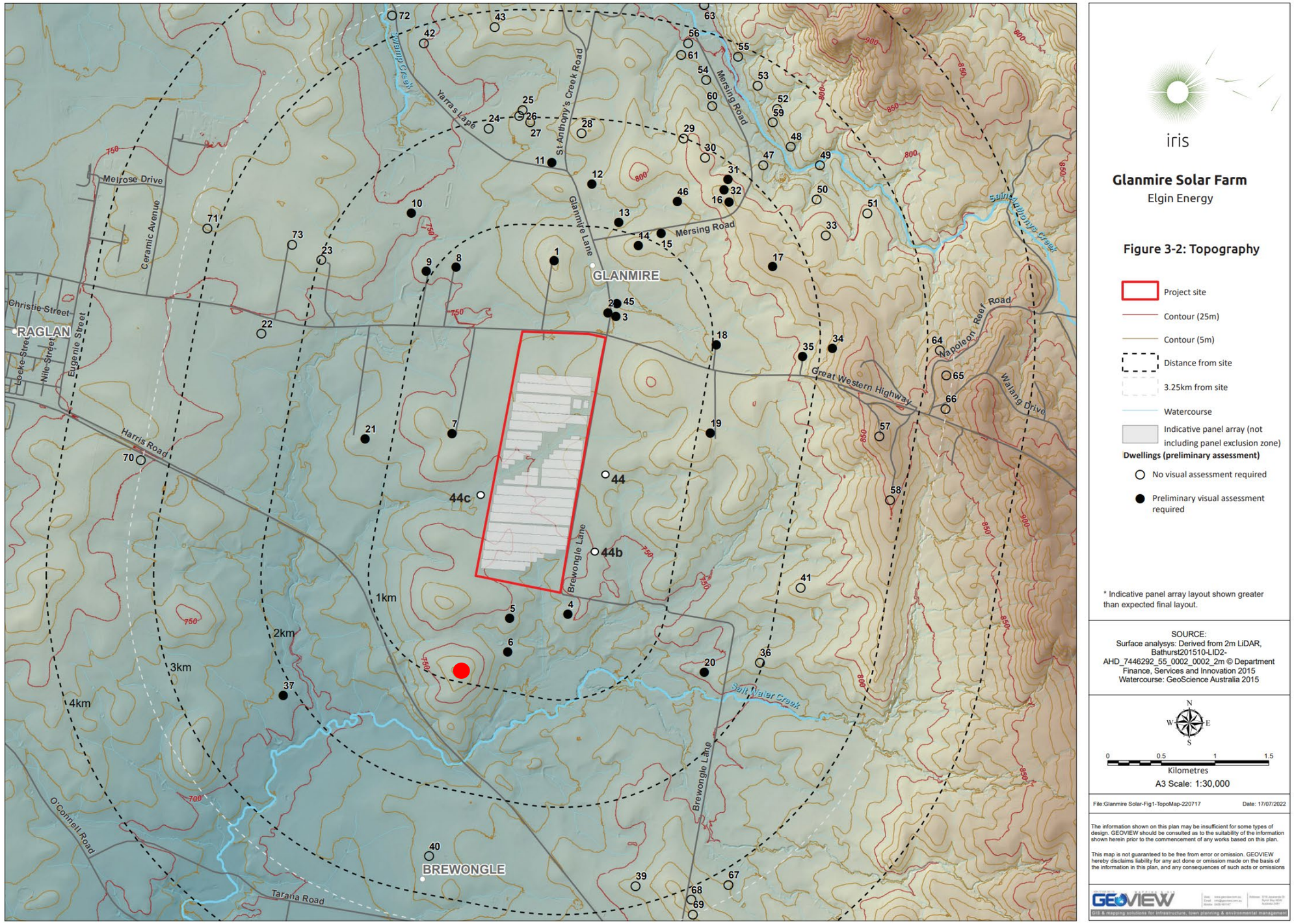


Figure 4-10 Glanmire visual receivers (second dwelling associated with 44c submission indicated in Red)

M. Glare at Brown's Mountain not assessed

Issue summary

Potential glare at sunset from Browns MT has not been properly assessed.

Submission reference

SE-52840474.

Glanmire Solar Farm Project response

The Glare Assessment identified glare risk from all dwellings within four kilometres of the project site, which included several dwellings in the vicinity of Browns Hill, to the east of the site. The assessment did not identify any significant glare risk.

Roads within three kilometres of the site have also been assessed. This is a substantially greater distance than what is required by the Large-Scale Solar Energy Guideline (2022), which is one kilometre only. This assessment included a section of the Great Western Highway in the vicinity of Browns Hill. No glare risk was identified from the Great Western Highway.

N. Incorrect visual receivers presented

Issue summary

The Applicant's maps of the adjacent receivers is incorrect and incomplete. Current residences are marked as proposed and proposed residences are marked as current. One of our proposed residences, with the highest visual impact, has been excluded from the mapping.

Submission reference

SE-52415715.

Glanmire Solar Farm Project response

IRIS have reviewed the plans presented in the LVIA and they correctly show the existing and proposed dwellings as *identified or observed* on site.

O. No consideration of views from mount Panaroma

Issue summary

The EIS fails to consider the visual impact of the site from Bathurst's major tourist attraction, Mt Panorama.

Submission reference

SE-52426488, SE-52415715.

Glanmire Solar Farm Project response

Mt Panorama is acknowledged within the visual assessment and EIS. A photo taken from the Great Western Highway looking west (Figure 4-11), notes Mount Panorama is visible in the distance and within Section 3 of the visual assessment, the report notes:

> *'The attractive hills of the Great Dividing Range to the east, form a dramatic and scenic backdrop to the valley, and Mt Panorama can be seen amongst the hills beyond Raglan and Bathurst to the west. This includes a clear view of the iconic Mt Panorama sign.'*

While visible, it is more than 10km from the Project site. The most representative view point is public view point 3, located 2km from the site on the highway and rated as very low impact without mitigation and no impact once visual screening becomes effective.

It is also noted that the most visible area of the site is the northern section, where a 300m exclusion zone / set back has been provided as part of the Project's commitments to ensure that visual impacts of the Project would be acceptable.

Figure 4-11 View west from the Great Western Highway (Iris, 2022)

P. LVIA is misleading

Issue summary

Concern that the visual impact assessment is misleading or inaccurate. Specific concerns were detailed and include:

- Panel heights, positioning and scale not correct, noting comparison to human height.
- Scale and solidity of the security fence along Brewongle Lane not correct in magnitude analysis.
- Regarding public view points from roads:
    - Viewpoint 1 omits many infrastructure elements.
    - Viewpoint 2 fails to include a critical portion of the view where panels and substation and associated infrastructure will be visible.
    - Great Western Highway and Mitchell Highway, have undergone new plantings recently; LVIA has failed to assess the impact along these two main approaches roads.

- Viewpoint 3's alignment of the distant skyline is inaccurate.
- Viewpoint 4 is different to that shown in the EIS and based on the elevation of the image, the solar panels would be visible and mitigation measures are necessary.

- Glare in relation to the visibility of the solar panels has not appropriately represented.

Submission reference

SE-52633990, SE-52633987.

Glanmire Solar Farm Project response

Height is considered in two main ways in the visual assessment methods; first to identify local areas from which the Project may be visible. This defines the 'visual catchment'. In this case a block representing the Project is modelled over digital landform data derived from LiDAR. Secondly; to consider specific views at key locations around the site. The assessment team adopted best practice measures available at the time and made conservative assumptions to provide a 'realistic worst case' assessment including modelling panel angles for greatest visibility / contrast, by using the largest array area that could be developed within the Development Footprint and by modelling the uppermost array height of 3.5m noting: the average panel height is much less than 3.5m.

All features of the project within the Project site that have the potential to cause a visual impact have been considered in the visual assessment. They are considered in the preparation of photomontages and used for the magnitude analysis. Regarding off site transmission line works, a separate assessment has been undertaken specifically for these works. This element is not included in the photomontages. This assessment is discussed above (refer to section 4.3.2, K).

Viewpoint 1 – Brewongle Lane

Brewongle Lane is shown below, the public access road that would be used to access the site. In both cases, the assumed solar panel height of 3.5 metres is considered to represent a height greater than a worst-case scenario. It is noted that as the panels will track the sun, that angle and height will vary across the day; steepest when the sun is low in the sky. The image below shows the steep early morning angle facing east and includes the security fencing.

Figure 4-12 Viewpoint 1, View south along Brewongle Lane, photomontage (day 1, no planting shown) of the Visual Impact Assessment

Viewpoints 2 and 3 – Great Western Highway

In relation to views from the approaches to Bathurst, the assessment determined there would not be a visual impact in views from the Great Western Highway. This assessment has been provided through the two representative viewpoints, Viewpoint 2 and 3, which illustrate the locations where there is the greatest potential for a view of the project. The project would not affect the new plantings that have been provided as a part of the BRVMP (Bathurst Regional Vegetation Management Plan) The assessment found no visual impact in westbound views (Viewpoint 2) and very low visual impact in eastbound views (Viewpoint 3). The Mitchell Highway is not located within the study area, and there would not be a landscape character or visual impact on views on this approach to Bathurst.

A considerable setback from the Great Western Highway and north-eastern corner of the site. This setback was determined to eliminate any visual impact in views from the Highway. The assessment considers the visibility of the substation in all views and photomontages.

The photomontages prepared for viewpoint 3, have been verified using LiDAR data and are accurate. Photomontage alignment for each view is provided in Appendix B of the LVIA. This includes Figure 10B (refer to Figure 4-14 View east along the Great Western Highway, view alignment and photomontages which shows evidence of the project alignment in the 3D model for Viewpoint 3, View east along the Great Western Highway.

Figure 4-13 View east along the Great Western Highway, photomontage (day 1, no planting shown)

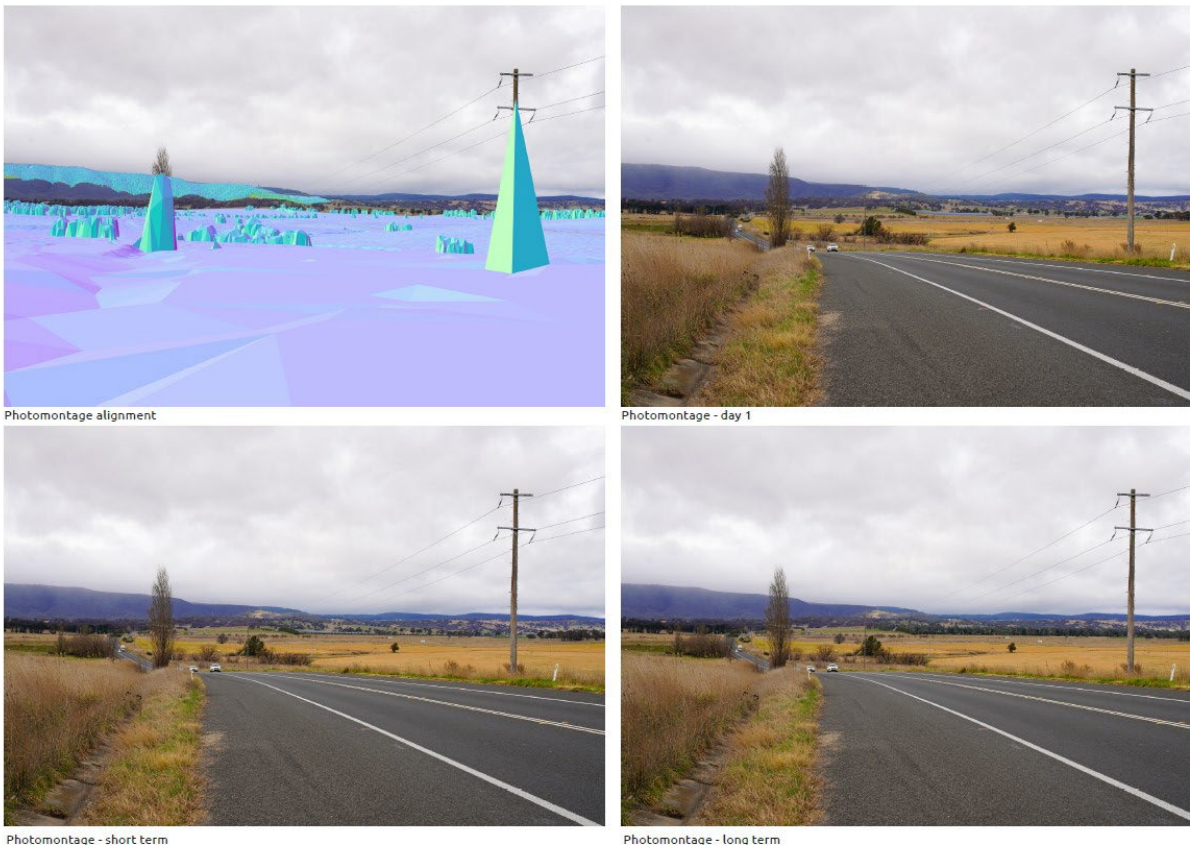
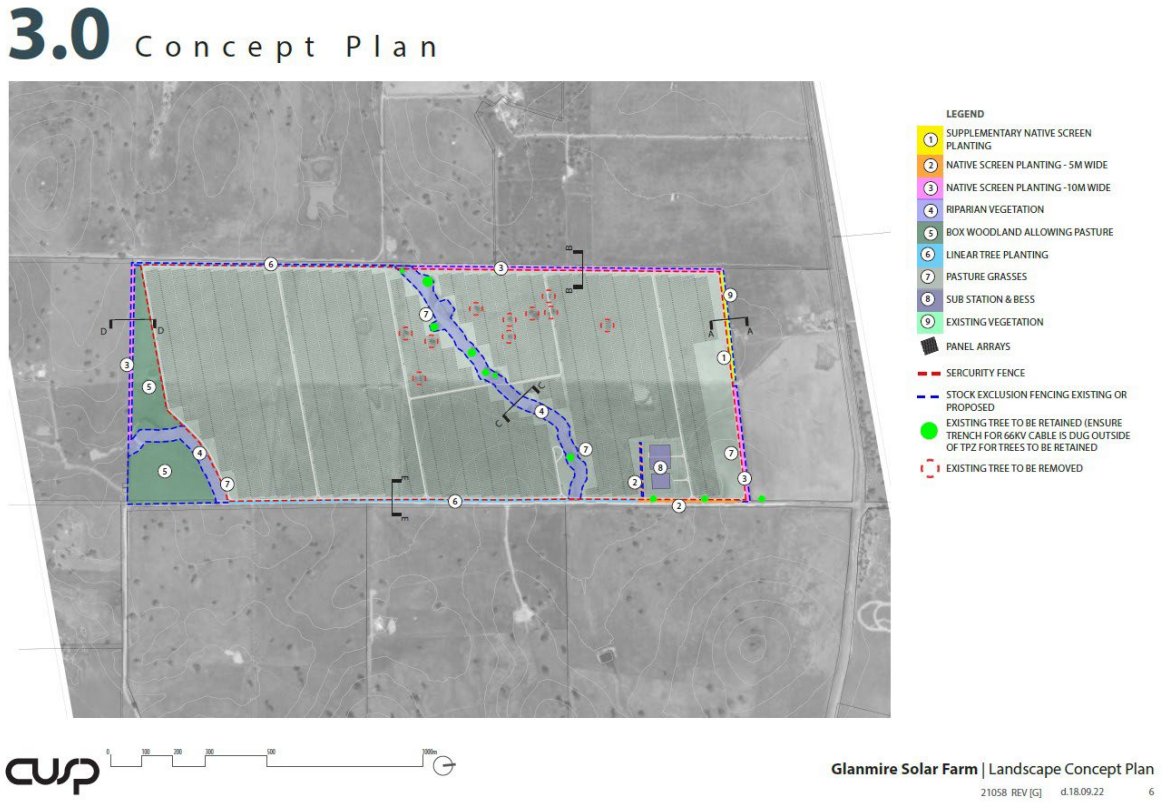


Figure 4-14 View east along the Great Western Highway, view alignment and photomontages

With reference to the landscape treatments proposed for highway views, in the context of existing highway plantings, the Landscape Concept Plan prepared for the Project does not include deciduous species as this would reduce the effectiveness of the screening. It provides details of the proposed species, planting density and location of planting areas, as set out below in extracts from the plan.



Extract from the Landscape Concept Plan, showing the layout of proposed planting areas

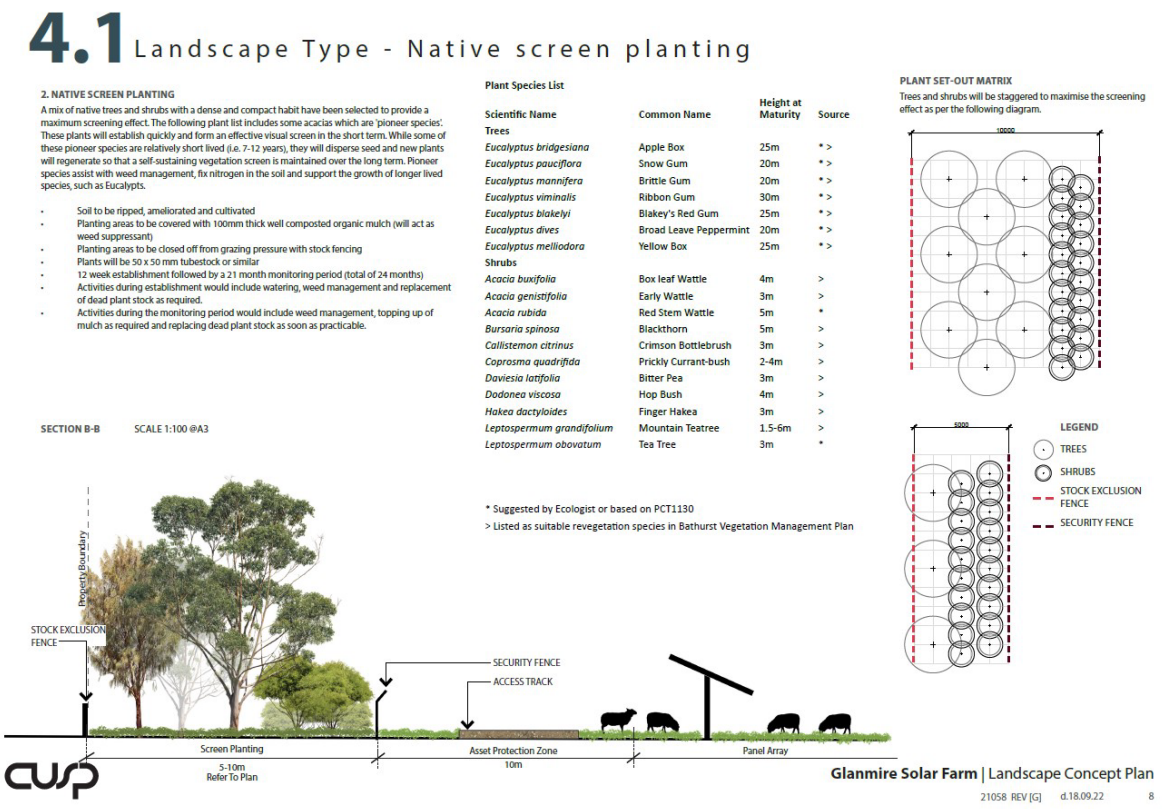


Figure 4-15 Extracts from the Landscape Concept Plan, showing the layout of proposed planting areas

View point 4 - South Mersing Road

The description of the topography in the view from South Mersing Road describes the landform as having an undulating fore and middle ground, with hills including Mt Panorama in the background, and distant range beyond, as illustrated in the accompanying photograph. It is not expected that there would be any visible panels from this location due to the low profile of the project elements, setbacks, intervening landform and vegetation. If any solar arrays were glimpsed, they would not constitute a magnitude of change that would result in a visual impact that requires mitigation. The assessment has determined that there would be no visual impact from this location and no visual mitigation measures would be necessary.

Figure 4-16 Extracts from the visual assessment Figure 6.10 View south from Mersing Road (existing view)

Panel glare assessment / representation

The glare analysis model is used to derive the number of 'glare minutes'. The glare analysis model exaggerates the potential for glare. The software is therefore likely to predict solar reflections over a larger area and for a greater length of time than would be experienced in reality. Furthermore, the glare assessment exceeds assessment requirements; while the final DPE Guideline (2022) only requires the assessment of glare from roads at a distance of up to 1km, this investigation considered a distance of 3km.

Photomontages are indicative of one time of day only and do not represent a worst-case glare impact. This is captured better by glare modelling than by photography. The glare analysis model concludes that operational restrictions can be used to eliminate the minimal glare from public view points.

Q. Appropriate location to minimise views (Support)

Issue summary

The land on which the Solar Farm will be located has only slight slopes, so that views onto the panels are easier to mitigate. Elgin has made appropriate changes to the layout of the panels to reduce visibility. Screening by trees and shrubs in the line of sight to the panels will reduce visual impacts.

Applicants are to be congratulated for establishing an exclusion zone to protect the heritage former Woodside Inn and also to protect that gateway vistas which are so important to Bathurst.

Submission reference

SE-52506457, SE-52519217, SE-52839983.

Glanmire Solar Farm Project response

In addition to the detailed investigations undertaken by the environmental assessment team, the feedback from the local community has been vital to developing effective visual mitigation strategies for the Project. The feedback has been used to upgrade sensitivity in the visual assessment as well as develop set back areas and structure vegetation planting to ensure that visual impacts are effectively managed.

R. Loss of country town feel

Issue summary

Loss of country town feel because of view of solar farm.

Submission reference

SE-52840478, SE-52467961, SE-52106707, SE-52077235, SE-51363997, SE-51098966.

Glanmire Solar Farm Project response

The Project site is located approximately 10km east of the centre of Bathurst. The land is zoned for rural use (RU1) with surrounding land uses predominantly agricultural. It is bounded to the north by the Great Western Highway.

The Project will not be visible from Bathurst or Raglan, the closest locality. In consideration of how the Project may affect the country town feel of Bathurst, the Project has considered primarily, the view from other public view points. This includes two view point assessments from the Great Western Highway and assessment of the impact on the ‘gateway’ to Bathurst, in this respect.

The Project has incorporated design and layout advice from the visual assessment team as well as landscaping treatments, developed in tandem with the development of the infrastructure layout. This includes a 300m set back from the highway and tree planting areas (enhancing existing areas as well as perimeter planting). Together, these measures effectively reduce the visual impact potential of the Project a low level. The visual impact assessment noted that, locally, the Project would have:

- Low landscape character impact – no mitigation is technically required but it is noted the mitigation that is proposed may enhance landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

Only one local road would be affected, and the road is not subject to high traffic numbers. A moderate visual impact on views from Brewongle Lane, reducing to low visual impact with the implementation of the landscape plan, is anticipated.

Importantly, given the location of the site at the 'gateway to Bathurst', no visual impact from the Great Western Highway on the approach to Bathurst would occur - due to set backs and an array exclusion zones proposed. Very low visual impact on views east bound from the Great Western Highway would occur, but with mitigation this reduces to no impact in the long term.

The Project may have other effects that impact on the county town feel. During construction, the laydown areas and construction site will be visible on the northern site boundary, adjacent to the Great Western Highway. The additional employment onsite will also generate additional activity in Bathurst and is likely to be a significant economic benefit, in terms of patronage to retail establishments and the use of local contractors and suppliers where possible. These construction impacts are temporary and considered to have no noticeable adverse impact on the country town feel of Bathurst, once the Project is operational.

4.3.3. Insurance issues

Issue summary

Concern that the nature of the Project will affect insurance premiums for neighbours or have an impact on neighbour activities, due to both the potential of neighbour activities to impact the solar farm assets and the potential of the solar farm activities to affect neighbouring operations. The cost of the insurance may become prohibitive for neighbours. Insurers may 'punish' existing land holders via vastly increased premiums or providing zero coverage.

Concern that insurers will not provide public liability cover to businesses beside solar/battery plants or that given the risks, activities such as crop harvesting may be affected or restricted.

Key risks raised include:

- Risk of fire ignition on the solar farm or neighbouring property:
    - Suggested that setbacks should be a minimum 30 metres with a further 300m asset protection zone on the site.
    - Suggested that neighbours should be indemnified and/or compensated for fire escape from the solar farm and for loss of farm income.
- Risk of bushfire:
    - The location of solar farm's assets including the battery may affect the techniques local owners use to manage fuel loads.
    - A bushfire in the area may now have serious consequences, given the solar farm's assets including the battery.

Suggested that Applicants should cover any additional public liability insurance costs incurred by neighbouring landholders and where suitable insurance cannot be obtained, the Applicant should indemnify the neighbour for reasonable risk in relation to typical public liability cover.

Suggested that compensation should be provided by the Applicant for any land use constraints imposed on neighbouring landowners through public liability insurance policies which reduce land use options. For example, changes to cropping or fire management.

Submission reference

SE-52846215, SE-52840482, SE-52840480, SE-52839989, SE-52839979, SE-52839968, SE-52832709, SE-52828462, SE-52827457, SE-52826959, SE-52817243, SE-52817238, SE-52817213, SE-52817208, SE-52816231, SE-52641459, SE-52624507, SE-52603207, SE-52504963, SE-52498712, SE-52467961, SE-52426488, SE-52415715, SE-52276223, SE-52184710, SE-52152471, SE-52136974, SE-52131526, SE-52127477, SE-52091538, SE-52082474, SE-51363997, SE-52827503, SE-52826961, SE-52633987, SE-

52571457, SE-52827467, SE-52600457, SE-52526207, SE-52497487, SE-52397473, SE-52827465, SE-52260517, SE-52633990, SE-52448710, SE-52461710, SE-52826959, SE-52826957.

Glanmire Solar Farm Project response

Elgin Energy, as the Applicant for the Glanmire Solar Farm, will have insurance in place to cover damage to neighbouring properties as a result of Project activities.

Consultation between Elgin Energy and several insurance providers has been undertaken to understand the potential for a neighbour's premiums to be affected by the development of a solar farm. The key advice from these bodies is summarised below, as follows:

- The Australian Insurance Council was consulted prior to EIS exhibition and again after, on this issue. They have confirmed there is no further change to their initial statement, which was, they are not aware of any position of escalated risk focus being placed on neighbouring properties solely as a result of solar facilities being established.
- Communication with the National Insurance Brokers Association (NIBA) resulted in a similar comment. They advised there is no evidence of increasing insurance premiums on sites adjacent to solar farms.
- Insurance broker (un-named7). Elgin Energy has been in talks with one of the largest insurance brokers in Australia to get a better understanding of this issue from the perspective of a broker. In these conversations it was noted that as the solar farm will be managed and operated with strict protocols, which includes vegetation and bushfire management, that the activities of the neighbouring farms will not have a bearing of the insurance of the solar farm, based on the distance between the solar farm structures and the neighbouring properties and their activities.
- Clean Energy Council (CEC) is an industry representative body for Clean Energy in Australia. CEC members include the developers and operators of hundreds of clean energy projects in Australia. Elgin Energy have consulted with the CEC in relation to this project. The CEC are not aware of any instances where a landholder's insurance premium was increased due to the presence of a neighbouring solar farm or BESS project.

Large scale solar farms have been operational in Australia since 2012 (Grenough River Solar Farm, WA) and since then there have been hundreds of solar farms constructed (over 8GW). There is no evidence from these projects to suggest that there has been any increase of neighbouring landowners insurance premiums due to the operation of these assets.

Elgin Energy have formed the view that the construction and operation of a solar farm should not significantly impact the cost of a public liability policy of a neighbouring farming property. From the consultation with these insurance providers, there is no evidence of increased insurance premiums being associated with farms which neighbour solar farm projects. On this basis, further set backs and compensations on this account are not considered to be warranted.

The Project's assessment team has also investigated this issue further, with reference to the newly released NSW Agricultural Commissioner's report, in November 2022, recommending improvements to the policy framework to manage issues arising alongside the growth in the renewable energy and agriculture sectors (NSW Agriculture Commissioner, 2022). The DPE is understood to be considering the recommendations in detail at this time and have not yet provided a formal response. However, the Agricultural Commissioner's report currently recommends:

> *Recommendation 22: Project applicants in the renewable energy sector should cover any additional public liability insurance costs incurred by neighbouring landholders as a result of proximity and risk*

[7] The insurer asked that they not be named in this response.

> *to new energy facilities. In cases where suitable insurance cannot be obtained, the applicant should indemnify the neighbour for reasonable risk in relation to typical public liability cover.*

The report stated that the principle for this recommendation is that adjacent landholders should bear no additional costs due to the installation of these new facilities.

The NSW DPE has so far taken no action to endorse this recommendation, stating it:

> *…recognises the concerns raised by landholders in relation to fire and insurance risks as a result of neighbouring renewable developments and considers further information and analysis is required to understand the extent of the problem and to respond appropriately. The NSW Government is undertaking this analysis to determine appropriate action on the issue, including further consultation with the Australian Energy Infrastructure Commissioner and the Clean Energy Council.*

As part of the EIS and the development of the Project's mitigation strategies, NGH have investigated fire risk and land use compatibility in particular, in relation to Glanmire solar farm and its effects on neighbouring activities. NGH have also consulted with the RFS and included their recommended procedures and guidelines as part of the Project. Key outcomes from the assessment team are that onsite risks can be managed in accordance with best practice agency advice regarding:

a) Detailed design of higher risk infrastructure (battery energy storage system).
b) Ground cover management plan to monitor and manage the retention of ground cover beneath the panels including fuel management.
c) Biosecurity management strategy, regarding weeds / pests that may impact neighbouring farms.
d) Bushfire management plan, regarding water supply and access to the site in an emergency.
e) Fire safety study and emergency response protocols, as above.
f) Rehabilitation commitments to ensure the decommissioned project retains or improves the land soil capability classes present onsite.

In combination, with the improved site access and onsite network of access tracks that accompany the Project, these mitigation commitments a) to f) will ensure the site is well managed and monitored and neighbours will benefit from this management regime (being more highly managed and subject to reporting and compliance than existing onsite operations).

From these investigations, NGH's assessment is that the construction and operation of a solar farm on an adjoining property should not impact the public liability costs of these adjoining properties. While an insurer will determine and apply their own risk framework, acceptance criteria and pricing model, NGH have shown quantitatively that the risks of the Project are well understood and can be mitigated with high confidence for this Project, in this location.

At this time, no effect has been demonstrated but the Applicant recognises the level of concern and uncertainty and is working with the DPE to ensure this issue can be addressed appropriately for the broader renewable industry as well as the Glanmire Solar Farm, specifically. If credible evidence suggests there are uplifts in insurance premiums of landowner neighbouring solar / BESS projects that is caused by the operation of these projects, then Elgin Energy state they are willing to work with government agencies and DPE and industry bodies to look to address impacted neighbouring landowners.

4.3.4. Socio-economic

A. Loss of agricultural jobs

Issue summary

Concern that the solar farm will result in a loss of jobs including fencers, spraying contractors, harvest contractors, hay making contractors as agricultural activities around the farm will cease.

Submission reference

SE-52504963, SE-52571457.

Glanmire Solar Farm Project response

The current grazing and cropping regimes on the farm will effectively cease for the life of the solar farm. While some grazing is expected to continue, this will be primarily used as a ground cover management / fuel load reduction strategy in and around the arrays and may not produce a viable income considered separately.

The Agricultural Impact Statement (Appendix D4 of the EIS) prepared for the Project assessed the potential contribution that the farming operation currently provides, in terms of the land capability and the local agricultural economy and infrastructure. It assumed the land would be taken out of production entirely and concluded a low impact on agricultural capability, infrastructure and the agricultural local economy would result. Hence, the loss of agricultural jobs as a result of ceasing farming operations on the site would not be locally significant.

The Agricultural Impact Statement did not take into account the additional income streams and employment the Project would provide. The Social Impact Assessment considers this aspect (Appendix D7 of the EIS). Compared to the agricultural enterprise currently operating onsite, the Glanmire Solar Farm Project would generate additional employment and training opportunities as well as local economic stimulus for the local community, its residents and businesses, particularly during construction.

The Project would generate approximately 150 jobs during construction; many of these jobs will be able to be met by local staff. Consultation suggested that a project of this size would generally employ approximately 30-50 local people, mostly in labouring roles. Complementing this, some technicians and other resources will be brought in to work with the specialist technologies required to construct the Project. The main contractor during construction will be looking to a number of different skills and suppliers, which are likely to include earthworks and plant operators, labourers, mechanical and electrical engineers, building contractors, heavy vehicle operators, welding and fitting, accommodation, mechanics and maintenance, equipment hire, freight, fencing, and waste management.

To operate the solar farm, a much reduced 1–3 full time equivalent jobs would be provided however, many of the maintenance activities would be able to be met by local staff and are aligned with agricultural skills and trades. These are likely to include weed management and monitoring, agronomists and landscape contractors. Operational grazing would also require management. The local component of employment generated by the Project would be maximised by preparing an Accommodation and Employment Strategy, as part of the Project, including measures to maximise local participation.

Further discussion on the impact on agricultural livelihoods is provided in Section 4.3.1.

B. Loss of jobs for tourism-based activities

Issue summary

Concern there will be a loss of jobs for people involved in tourism activities.

Submission reference

SE-52840478.

Glanmire Solar Farm Project response

No specific tourism income is currently derived from the site. Tourism jobs may be affected however, if overall tourism levels declined, if the Project impacted tourist draws to the area or if the ability to service current tourism levels was affected by the Project.

Around 14 submissions raised the concern that the Project may impact local tourism levels. These submissions primarily raised the impact on local visual amenity as affecting tourism Section 4.3.2 (sub-section D) and Section 4.3.2 (sub-section I), considered these overlapping issues. In conclusion, they found that visual impacts that may affect tourism levels would be confined to the construction stage, when the compound will be visible from the highway. The views of the site in the operational stage have been nearly eliminated by imposing set backs from the Great Western Highway in the design and developing a Landscape Concept Plan which will minimise views to the infrastructure. Particularly, the visual assessment found the visual impact mitigation that is proposed may enhance landscape character in some locations due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

Regarding servicing tourism levels, this is also most relevant to the construction phase. It is noted there is a good mix of short-term accommodation within 25km of the Project including motels, hotels, apartment-style, self-contained and dormitory-style options, guest houses, and cabins in caravan parks but that short-term tourist accommodation is often at capacity during most weekends. An Accommodation and Employment Strategy is proposed to address housing concerns and maximise local employment. The 150 jobs created during construction may place a strain on local accommodation, particularly where peak construction (4 months out of the 12 month construction program) may coincide with tourism events, such as local festivals and motor events. This may affect the availability of accommodation (and other services) required by tourism. These planning commitments are developed to manage this potential conflict. The more local employment can be sourced, the less impact on local services will be felt; a win-win for the local community and businesses. No other impacts on local tourist draws (events, festivals etc) are anticipated.

Currently, Bathurst Regional Council is developing strategy and branding of Bathurst region as an eco-destination, including EV tourism. It was noted during consultation that renewable energy developments like the Glanmire Solar Farm Project tie in with Council's broader renewable energy aims and could positively impact tourism opportunities in the future and spread the benefits of the Project for the community into the operational stage.

On balance, there is considered to be low potential for adverse effects on tourism. These can be managed and apply most to the key period of 4 months peak construction. There is also potential for positive impacts, as tree planting and alignment with local planning initiatives create future tourism opportunities for the region.

C. Impact on land and house prices

Issue summary

Concern that land and house price will be devalued in areas close to a solar farm.

A right to a secure value for local farmers and land owners should be retained.

Concern that no compensation has been agreed or discussed for land devaluation.

Submission reference

SE-52846215, SE-52839979, SE-52828726, SE-52828462, SE-52827495, SE-52821957, SE-52819207, SE-52817243, SE-52816222, SE-52621707, SE-52526207, SE-52498712, SE-52415715, SE-52184710, SE-52124466, SE-52109210, SE-52082490, SE-52077235, SE-52571457, SE-52827497, SE-52304709.

Glanmire Solar Farm Project response

Land valuation is highly site specific and as such it is difficult to provide a definite answer to the question: what impact will this solar farm have on the future land and house values of neighbours? Large changes in land and house prices over recent years across the country attest to the fact that drivers can also be external from the local area; 'tree change' movements in 2020 were the highest in two decades (ABS 2020).

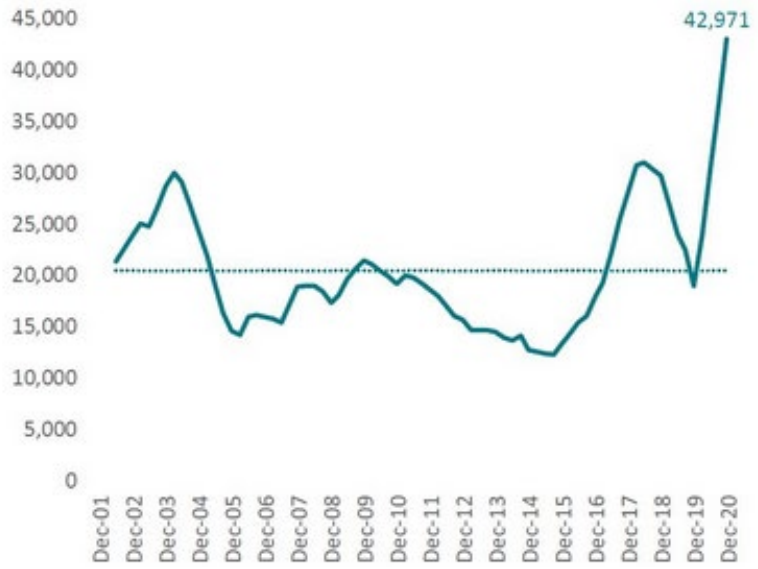


Figure 4-17 Net internal migration to regional Australia (rolling annual) (ABS 2020)

At present, the land value driver at the Project site and its immediate surroundings is considered likely to be primarily related to its agricultural production capacity; given its current land use is solely agricultural, it is zoned rural and lacks any other type of commercial infrastructure. Life style blocks and rural residential development are also present locally and a key theme of the consultation and within submissions is that neighbours and locals value their views and the visual amenity of the locality. As such, these factors may also influence land and house values in the immediate area.

Regarding impacts on near neighbours' property values from a solar farm development, there is no site specific comparison that can be used and relatively little Australian data to source. Therefore, the below discussion sources another Australian large scale renewable development, wind, as well as overseas solar experiences.

Australian studies generally lack sufficient sample size to derive meaningful trends. The key Australian study examining the impacts of *wind farms* on property prices found there to be insufficient sales data to make definitive conclusions and no Australian research examining the impacts of solar farms is available (Urbis Pty Ltd, 2016). An earlier Australian study conducted by CSIRO which examined community acceptance of rural *wind farms* found that property prices had not been found to increase or decrease, although the potential market for buyers may be decreased (as referred to in (Tognato & Spophr, 2012)).

A study of large-scale photovoltaic solar projects on residential home prices in the United States has recently been published (Elmallah, Hoen, Fujita, Robson, & Brunner, 2023). Reviewing six states and over 1.8 million home transactions, two questions posed:

1. What effect does large-scale photovoltaic solar have on home prices?
2. Does the effect of large-scale photovoltaic solar on home prices differ based on the prior land use on which the projects are located, their size, or a home's urbanicity[1]?

The results showed an average home price reduction of 1.5% when comparing homes within 800m to homes 3.2–6.4km. However, the study found that the results were highly contextual. Key factors were the size of the project and the prevailing land use. Key recommendations included the need to consider neighbour impacts, measures that ameliorate impacts (including vegetative shading), land use co-location and compensation for neighbours.

The NSW Government's revised Large Scale Solar Guidelines (DPE, 2022a) can be seen to address these specific issues for NSW utility solar; social, visual amenity and agricultural impacts are addressed. It states that a constraints mapping exercise should be carried out considering, among other matters, important agricultural land and soil capability of the subject land and surrounding land. Is includes project siting guidance and sets out detailed assessment requirements where projects may affect visual amenity and agricultural use for example. They also set out guidance in relation to impact agreements where significant neighbour impacts are anticipated.

The Glanmire Solar Farm Project has applied the NSW Government's revised Large Scale Solar Guidelines (DPE, 2022a) and has undertaken a thorough assessment of visual, agricultural and social impacts in accordance with this guidance and committed to mitigation strategies to address the impacts identified. By appropriately siting the Project and its scale to ensure no greater than low visual impact and by developing community initiatives to spread the economic benefits of the Project, the Project demonstrates it would not have a significant impact on the locality or on neighbours. Permanent impacts on important agricultural land can be minimised, as shown by the indicative layout provided. No negotiated agreements or compensation is therefore relevant to the Project.

Given that there is no definitive and directly relatable research regarding the impacts of solar farms or battery energy storage systems on nearby property values or insurance, it is not possible to make an evidence-based assessment about the impact of this Project on the property values of the surrounding properties.

It is noted that securing land values is not required for any development application in NSW, although the consent authority will carefully consider the impacts on neighbours. The question of whether the effect of a development on neighbouring land values is a planning matter has been debated most notably in Victoria where several legal precedents set out that it is not a valid planning matter (refer to Ross v Shire of Rutherglen (1981) 4 APA 101; Ralph Smith v City of Nunawading (1983) 11 APA 40P; Briant v City of Knox (1985) 15 APA 443 at 460; Micaleff v City of Keilor (1993) 11 AATR 139 at 146).

D. Effect on local economy

Issue summary

Concern there will be a negative impact on local economy.

Concern that profits produced will not be spent/ distributed in the local economy.

[1] In this EIS discussion, urbanicity is being used to consider the smaller lot sizes and non-rural land use activities such as cafes, accommodation and tourist establishments.

Submission reference

SE-52816220, SE-52415715, SE-51098966, SE-52571457, SE-52828464, SE-52152471, SE-52571457.

Glanmire Solar Farm Project response

The local economic outlook for the Bathurst and the wider region is strong, with a range of major projects, infrastructure developments, and sector diversification either in progress or in the pipeline. Projects include IBM Bathurst, Central West Pumped Hydro, Great Western Highway Upgrade and the Inland Rail. The region is currently experiencing low unemployment.

The most common industries of employment in 2016 were hospitals (3.4%), higher education (3.3%), and primary education (2.7%). The four most common occupations of employment in the LGA accounted for more than half of all occupations. These were professionals (18.9%), technicians and trades workers (14.5%), community and personal services workers (13.5%), and clerical and administrative workers (12.0%) (ABS, 2016). The Bathurst LGA's Gross Regional Product for the year ending June 2021, The highest contributing industry was education and training ($288m, 13.8%), followed by manufacturing ($269m, 12.9%), and construction ($233m, 11.2%) (idcommunity, 2022b). Consultation with local business community stakeholders indicated that there is a shortage of skilled tradespeople in the Bathurst area, and that businesses are struggling to get staff.

The Project is anticipated to increase economic activity within the local and regional areas. The Project will directly and indirectly - through its supply chains - create demand for goods and services, such as accommodation, food, construction materials, freight, and local labour. It is likely that local businesses will be able to supply some of these goods and services, and so the construction of the Project will help support local businesses in the region. The increased income and spending of the construction workers and others across the supply chains, will also add to the stimulation of the local economies more broadly, as income circulates through the economy.

Although the total economic value of these direct and indirect economic outputs is unknown, consultation with local agencies and business representatives highlighted the importance that local people place on seeing tangible outcomes for local business, even over the short term. The Applicant supports benefiting the local community as far as practicable, with the following key benefits highlighted for the local area:

- Direct and indirect employment opportunities during the construction phase (approximately 150 staff during peak construction periods; 4 months out of approximately 12 months) and operational phase (around three full time equivalent staff).
- Local employment would be maximised by consulting with local employment and training organisations, and potentially supporting training and apprenticeships relevant to the Project. It is expected approximately 50% of the workforce (approximately 175 workers) would be from the local community.
- An accompanying injection of expenditure in the local area is anticipated. Economic stimulus is expected particularly during peak construction for retail services in Bathurst.
- Brewongle lane upgrade: This will improve access during rain events for the Project, neighbours of the Project and local traffic.
- A Voluntary Planning Agreement will be developed in relation to the Community Benefit Sharing Scheme with Bathurst Regional Council.

It is also noted that by developing a new and compatible land use option, the Project assists to diversifying the local economy and provides a local drought resilient revenue stream for the hosting landholders, which would continue to be used in the local area during adverse periods in agriculture (e.g. drought, commodity price reductions).

E. Effect on social disharmony

Issue summary

Concern that the Project will lead to social disharmony. Specific reference is made to the 2017 Brewongle solar proposal; a close knit community has been split and this division has continued to the present time.

Submission reference

SE-52571457.

Glanmire Solar Farm Project response

It is understood that the prospect of an increasing number of large renewable energy projects in rural communities can create anxiety and concerns for the local communities affected. Development projects are known to create stress and uncertainty in people who oppose the project and/or are directly impacted (Prenzel & Vanclay, 2014). It can also extend to fears about the future, including potential changes to people's home environment and surrounding landscape. It can be exacerbated by a sense of powerlessness or lack of control over the unfolding change process (Albrecht, et al., 2007).

It is acknowledged that for the Glanmire Solar Farm Project, these adverse outcomes have been experienced by some neighbours. These stresses can be seen as being typical of this stage of the Project, and in many cases, this stress can subside once decisions are made regarding the Project's next steps.

Because NSW must address the urgent energy needs of consumers as coal power plants retire and transition the electricity grid to a more sustainable footing (as evidenced by state and local planning policies), community consultation expectations for Applicants have increased over the last few years. In 2021, DPE released Social Impact Assessment Guideline for State Significant Projects. Applicants are increasingly seeking specialist assistance in consulting with their local communities. For the Glanmire Solar Farm, NGH were engaged at the EIS stage to ensure that local values and understanding the Project were maximised in accordance with best practice guidance.

It is acknowledged that although specific efforts to avoid community disharmony are undertaken as part of the Glanmire Solar Farm Engagement Strategy, that some concerns persist regarding the spread of impacts and benefits within the community. The Project team will continue consultation and collaboration with the community and will work towards maintaining social harmony. Future engagement activities are a commitment of the Project.

F. Impact on rental accommodation

Issue summary

Concern that a negative impact on rental accommodation will occur during construction of solar farm.

Submission reference

SE-52397473.

Glanmire Solar Farm Project response

The construction program will exacerbate pressures on accommodation and rental housing. This is most relevant to the peak period, estimated to be 4 months out of the 12 month construction program period. During this time approximately 150 full-time jobs would be generated and would need to be accommodated locally. Short term accommodation is likely to be sought over longer term rental options.

In the Bathurst area there is a good mix of short-term accommodation within 25km of the Project including motels, hotels, apartment-style, self-contained and dormitory-style options, guest houses, and cabins in caravan parks, but it is noted that short-term tourist accommodation is often at capacity during most weekends.

An Accommodation and employment strategy would be developed to ensure that there is sufficient accommodation for the Project's construction workforce, including consideration of cumulative impacts with other Projects which may occur concurrently. It will also outline measures that avoid potential negative impacts on local services and social infrastructure and manage positive social integration with existing communities. The strategy will also look to ways to limit and avoid adversely impacting on tourism opportunities, any vulnerable populations who are utilising temporary accommodation, and community members who are seeking rental housing. Planning well in advance of peak construction will be undertaken to ensure that there is sufficient accommodation available for the Project. The economic stimulus of the Project will be an overall positive impact for accommodation providers.

G. Lack of adequate benefit sharing

Issue summary

Concern that that there is insufficient benefit sharing. Specifically in comparison to the lost income from the site's current agricultural revenue.

Concern around the certainty and enforceability of measures to deliver tangible and long-term social and economic benefits for the local community.

Concern that there is not clear Council commitment to a Voluntary Planning Agreement (VPA).

Submission reference

SE-52633987 , SE-52571457.

Glanmire Solar Farm Project response

The benefit sharing aspect of the Project is a voluntary action taken in consideration of the long term relationship the Project will have with the local community and the need to ensure it is an active and positive influence in the community. As part of this project, a community benefit sharing program has committed to deliver $18,000 per annum for the life of the Project.

The Agricultural Impact Statement prepared as part of the EIS was prepared specifically to understand the economic effect of removing the Project site from the rural economy. It concludes that total removal of the site's agricultural activities would have a negligible impact on the agricultural local economy (in consideration of direct revenue and flow on services and product purchases regionally). The report does not quantify the economic benefits of the Project (discussed more fully in Section 4.3.4 D local economy). The community initiatives are not designed to offset this income.

Certainty regarding the commitment can be demonstrated by the Applicant's past experience; Elgin Energy works with long-term strategic partners to deliver Projects to the energization and provides asset management services through their operational life. They understand the nature of the commitment they are making. Secondly, the commitment (as with all elements of the Project description and the mitigation measures of the Project) are considered part of the Project's consent. Failure to development the Project in accordance with the consent would be a breach that would be investigated by DPE (likely leading to a requirement to address the breach and possibly penalties).

The initiatives will be finalised with input from Council, pending approval. The short list of eight initiatives below however, reflects the research undertaken by the social impact assessment and communications

teams working on actions that would be appropriate for the Glanmire Solar Farm Project in consultation with the community. They include:

Eight local initiatives

1) **Contribution to roadside weed spraying in the Glanmire/Bathurst area**
2) **Contribution to the Glanmire RFS**
3) **Contribution to the Rotary Youth Driver Awareness (RYDA) program**
4) **Contribution to the Innovation Hub via Charles Sturt University (CSU)**
5) **Contribution to the local WIRES organisation**
6) **Contribution to the Bathurst Upstairs Start-up Hub**
7) **Contribution to the CSU Renewable Energy Centre of Excellence (focused on local initiatives)**
8) **Funding of a scholarship for a local resident to study a relevant degree at CSU – such as electrical engineering, sustainability, environmental management. Focus on students that may be disadvantaged and unable to otherwise access the course.**

At this stage of the project, an in principle agreement with Council is appropriate. The VPA will form a signed agreement between the Council, a key stakeholder, and the Applicant, pending Project approval.

H. Social impact assessment timing

Issue summary

Concerns that the Social Impact Assessment is not adequate in relation to its timing and the online survey.

Concern that it was completed prior to plans being available to respondents.

Submission reference

SE-52497487, SE-52415715.

Glanmire Solar Farm Project response

Social Impact Assessment timing

The Social Impact Assessment (SIA) was drafted between April – June 2022. It was prepared in accordance with the *Social Impact Assessment Guideline* (DPE, 2022c). Impact scoping was undertaken in April and May 2022 based on the largest Project being considered (i.e. before exclusion zones and mitigation were finalised). It considered the results of:

- The online survey.
- Targeted engagement activities including property visits to several near neighbours.
- Other information provided or identified during research, including:
    - Feedback provided by Glanmire residents to the Project team at the Bathurst Show information stall,
    - Petition circulated by the Glanmire Action Group.
    - Publicly available perspectives posted on the Glanmire Action Group Facebook page and in local media articles were considered.

The SIA was revised in August 2022 to incorporate the findings of other EIS technical assessments (including the Visual assessment) and considered feedback from additional near neighbour meetings and other Project consultation that took place in June - August 2022. At this time, a more refined Project layout and idea of mitigation strategies was available.

It is noted that, as early social and environmental investigations are progressed through to detailed findings and final reports, they inform the Project in an iterative manner. For this reason, consultation activities in advance of the EIS's release, more often centre on process than specific results or finalised layouts. The intention is not to withhold information but to ensure the information provided is of most value to developing a responsive Project.

Online survey

Specifically, the online social survey, designed to inform the SIA and capture the broader community sentiment, ran from 19 April – 26 May 2022. The survey link was embedded on the Project website and replaced an existing survey form (to which no responses had been received) on the Project website. The survey was open to anyone interested in participating, including near neighbours.

The survey was timed to coincide with broader Project consultation and targeted SIA activities in April and May 2022. The survey link was included in letters to residents, emails to stakeholders, and advertised on the Project Facebook page. Attendees at community information sessions were provided with the link and encouraged to complete the survey. Despite this, only 28 survey responses were received, and of these, only five participants lived within 5km from the proposed Project.

NGH notes that adequate qualifiers and limitations of the survey process were not included in the SIA or EIS reporting of survey results. These are as follows:

- Participants self-selected to complete the survey. With many surveys of this nature, participants most likely to engage with the survey will hold strong views either in support of or opposition to the Project. Nearby residents and the broader community who are not directly affected are far less likely to provide a response, making it challenging to understand the full range of perspectives.
- This has been the case with this survey, and while the survey results align with the range of perspectives expressed by stakeholders and the broader community, the results should not be regarded as representative of community sentiment and should be interpreted with caution.

I. Applicant has not obtained social licence

Issue summary

Concern that a Social Licence from the local Glanmire community has not been obtained for the Project.

Submission reference

SE-52415715.

Glanmire Solar Farm Project response

Obtaining Social Licence from the local community is a key aim of the Project, and we acknowledge that the engagement results during the EIS phase demonstrated that there remains localised concern regarding the Project. However, there is also support and encouragement from the broader community (including Bathurst).

We can confirm there is a strong sense of concern expressed by near neighbours and these concerns were highlighted in the EIS and primarily focused on the following topics:

- Change of land use and the perception that the soil quality is too high to host a solar farm and loss of agricultural outputs.
- Visual change a solar farm would bring, including change the character of the area.
- Concern of impacts on property values.
- Concern of impacts on neighbour's insurance premiums.
- Impacts to views of potential future dwellings (R44, 44b and 44c).
- The perceived limitation on developing renewable energy Projects within 5km of Raglan due to recent planning policy change.

The assessment to date has demonstrated that these matters were not significant in relation to the Project's impacts however, it is noted that individual sentiment may not correspond with the EIS's findings.

Broader community's sentiment was generally supportive, while noting the need to work constructively with near neighbours. Their main comments in support noted:

- Pressures of climate change and need to support an energy transition, including supporting renewable energy Projects in the Bathurst area.
- Need to move with greater speed to do this.
- Need to work constructively with the community to share benefits.
- Need to support local businesses and build capability to support renewable energy Projects.
- Need to support environmentally focused Projects.

We can confirm that elements of the Project design were adjusted and changed based on results of community consultation. The Applicant will continue to work with the community to identify, manage and mitigate concerns should the Project be approved.

J. Project benefits (Support)

Issue summary

Suggested that this Project offers significant net benefits to Bathurst and more broadly.

Submission reference

SE-51096464.

Glanmire Solar Farm Project response

The Glanmire Solar Farm's objectives remain as set out in the EIS. They are both strategic as well as specific in terms of outcomes for the local community. They include to:

- Generate renewable energy and improve network stability.
- Provide new industries and opportunities to the Bathurst region.

The objectives align well with federal, state and local planning policies to address climate change and increase the contribution of renewable energy into the grid.

As well as the economic stimulus expected from the Project, as discussed in Section 4.3.4 D, local initiatives have been outlined to spread the local benefits of the project, as discussed in Section 4.3.4 G.

4.3.5. Fire risk and other hazards

A. Impact on resources

Issue summary

Concern that RFS already stretched and this Project will put additional pressure on the system; limited resources to fight fires including insufficient water supply to extinguish a fire.

Concern about the solar farm and proposed BESS exacerbating fire risk; are asset protection zone setbacks sufficient.

Submission reference

SE-52839973, SE-52633990, SE-52828707, SE-52846215, SE-52827467, SE-52526207, SE-52504963, SE-52415715, SE-52152471, SE-52124466, SE-52448710, SE-52621707, SE-52426488, SE-52624507, SE-52497487, SE-52821957, SE-52461710.

Glanmire Solar Farm Project response

The RFS have provided relatively consistent advice in relation to solar farm development. Set backs of 10m, allowing a defensible space between solar assets and grassland vegetation, are required (an Asset Protection Zone). The infrastructure layout includes an access track network which will assist movements around the site in the event of a fire. Detailed fire management plans will be prepared in consultation with the RFS prior to works commencing, to ensure access, firefighting resources and response times are understood.

Because the solar farm includes a large battery, a Preliminary Hazard Assessment (PHA) is required to be undertaken to consider the risks and ability to management them. The PHA includes:

- Identification of the nature and scale of all hazards at the Project, and the selection of representative incident scenarios.
- Analysis of the consequences of these incidents on people, property, and the biophysical environment.
- Evaluation of the likelihood of such events occurring and the adequacy of safeguards.
- Calculation of the resulting risk levels of the facility.
- Comparison of these risk levels with established risk criteria and identification of opportunities for risk reduction.

While the Preliminary Hazard Assessment did not identify any major offsite consequences or societal risk, management recommendations which form Project commitments include the development and implementation of site-specific Bushfire Emergency Management and Operations Plan, Fire Management Plan, Emergency Response Plan and Fire Safety Plan.

As well, design measures that form existing commitments include:

- The detailed design of the BESS will be undertaken to comply with the requirements of Section 3.3.1 of the PHA.
- A 10m wide asset protection zone will provide a defensible space between assets onsite and the site boundary. This is standard requirement for solar development. Improvements to site access including the site entrance and internal perimeter track network further improve access and egress by emergency services where this may be required.

- The Project has dedicated fire water tanks with a minimum capacity of 20,000 litres for firefighting purpose. In addition, the designs have a provision of utilizing rainwater collected near O&M buildings for firefighting purposes.

NSW Fire and Rescue made a submission (refer to Section 4.3 Agency submissions) and noted that renewables facilities with large scale Battery Energy Storage Systems (BESS) pose special problems for firefighting and special hazards exist that may require additional fire safety and management measures. All NSW Fire and Rescue recommendations have been adopted by the Project, primarily centred on the development of additional detailed plans to be finalised in consultation with NSW Fire and Rescue:

1. Fire Safety Study developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper (HIPAP) No.21 and is to meet the operational requirements of FRNSW. It must consider the operational capability of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety independence. The FSS should consider worst-case fire scenarios including a full BESS unit fire and demonstrate no fire propagation within the facility. It is required to include an Initial Fire Safety Report (IFSR) and / or Performance-Based Design Brief / Fire Engineering Brief Questionnaire (FEBQ).
2. A comprehensive Emergency Response Plan (ERP) is developed for the site in accordance with HIPAP No.12.
3. An Emergency Services Information Package (ESIP) be prepared in accordance with FRNSW fire safety guideline – Emergency services information package and tactical fire plans.
4. An Emergency Responders Induction Package is developed for the site in consultation with, and to the satisfaction of FRNSW prior to commissioning of the site.

At this stage the planning commitments are high level. The detail would be developed, pending Project approval, in line with the final selection of infrastructure components and contractors via a competitive tender process. The updated mitigation measures (provided in Appendix B of this report) include these new provisions.

B. Impact on neighbour activities

Issue summary

Concern that neighbouring activities may impact solar assets, specifically fire risk.

Submission reference

SE-52184710, SE-52817238, SE-52526207, SE-52498712.

Glanmire Solar Farm Project response

The most probable risk to solar farm assets is that a grass fire may spread from adjoining land and impact on the solar farm's assets. While the site is not bushfire prone land, agricultural activities such as slashing, harvesting, use and repair of machinery, all have potential to ignite a grass fire which could spread rapidly in this location.

As set out above, a multi-tiered framework of management planning, consultation and design measures would accompany the Project to both reduce fire risks and ensure response mechanisms are in place as agreed with key agency stakeholders.

No impact on the ability to neighbours to undertake existing agricultural activities as anticipated from the Project. This is set out further in Section 4.3.1 (sub-section F) which found that:

- Risks have been identified that are considered highly manageable.

- These include construction phase and operational phase fire risks on the Project site, requiring careful management in the design as well as through the life of the Project.
- There is no reason to think that the adjacent agricultural enterprises will be adversely affected.

A related issue is the potential effect of fire risk on insurance premiums for neighbours, discussed further in Section 4.3.3.

C. Risk posed by tree buffers

Issue summary

Concern that tree buffers proposed as part of the Project will be an additional fire risk.

Submission reference

SE-52600457, SE-52415715.

Glanmire Solar Farm Project response

A large number of trees are proposed to be planted to mitigate the visual impact of the Project from specific locations. Riparian plantings will also improve local habitat and water quality values.

Tree buffers will be flammable in the event of a fire, however, are mostly proposed as linear plantings 5 to 10 m in width, easily able to be accessed in a fire as they are usually located next to the perimeter access track. The greater contribution to reducing fire risk is in the access improvements, asset protection zones, groundcover management of fuel loads onsite and emergency planning provisions to which the Project commits.

D. Toxic fumes

Issue summary

Exposure to toxic fumes and water in case of fire.

Submission reference

SE-52827499, SE-52448710.

Glanmire Solar Farm Project response

Fumes

Considering the potential for toxic fumes, the literature (Liao, Yang, Ju, Peng, & Gao, 2020) has reported that combustion of solar panels and associated infrastructure including batteries can be a source of toxic fume release, although to date the likelihood of occurrence is low with respect to the high volume of installation and adherence to supporting safeguards and mitigation measures.

A Preliminary Hazards Assessment (PHA) has been undertaken as a part of the EIS. The PHA contains an assessment of toxic waste stream potentially caused by the BESS. The PHA contains enhanced control measures that would be taken to mitigate contamination risk events such as coolant leaks. The controls of the PHA are included as a mitigation measure and commitment of the Project.

Solar panels are not considered combustible and management of the fuel levels beneath the panels would mitigate the risk of fire spread.

Water

A study on the potential for leaching of heavy metals and metalloids from crystalline silicon photo voltaic systems from the Journal of Natural Resources and Development was conducted to determine whether potentially toxic elements could have the potential to leach into the surrounding environment (Robinson & Meindl, 2019). The results of the findings concluded that there were no significant differences in lead or cadmium levels, with only minor concentration differences in other metals between soil samples under photo voltaic panels and the control sample.

The panels are set back from waterways and with the natural ground cover maintained beneath them. In the event of damaged panels, it is expected they can be removed and replaced with no effect on waterways.

Other

Severe damage to panels may occur, however data on these risks suggests that the probability of storm (hail) damage is quite low. Solar panels are designed for use under extreme conditions and pass tests that that simulate common environmental conditions and events, such as hail.

Research based on 50,000 solar energy systems installed between 2009 and 2013 just 0.1% were reported as being affected by damage (Jordan & Kurtz, 2014). The scale of impact is considered negligible and would be mitigated through regular inspections of solar panels throughout operation.

E. Fire management guidelines

Issue summary

Suggests that the project should fulfill the requirements of the County Fire Authority Victoria guidelines relating to risk associated with renewable energy projects, in the absence of other guidelines.

Submission reference

SE-52415715.

Glanmire Solar Farm Project response

The CFA guidelines have been developed to manage risks associated with renewable energy projects in Victoria. The approach Glanmire Solar Farm has taken to manage risk is consistent with NSW guidelines:

- NSW RFS. (2019). Planning for Bush Fire Protection.
- Consultation with Fire and Rescue NSW has taken place and all NSW Fire and Rescue recommendations have been adopted by the Project.
- A Preliminary Hazards Assessment (PHA) in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021, Hazard Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis (DoP, 2011a) (HIPAP 6), Multi-Level Risk Assessment (DoP, 2011b)(MLRA), Hazardous Industry Advisory Paper No. 4, Risk Criteria for Land Use Safety Planning (DoP, 2011c) (HIPAP 4).

As well, the recent learnings from the Victorian Big Battery Fire Statement of Technical Findings (Energy Safe Victoria, 2021) have been applied.

F. Risk factors of components

Issue summary

Concern that the assessment of the risk factors relating to the solar panels, substation and the battery system is inadequate without specifying the actual systems intended to be used. For example, the specific volatility of the battery storage system is unknown.

Suggests that there are currently no regulations or safety protocols for dealing with thermal runaway of batteries.

Concern that there are insufficient details on the fire suppressant systems that could prevent thermal runaway.

Concern about clearing and water requirements to address BESS risks.

Submission reference

SE-52571457 , SE-52633990.

Glanmire Solar Farm Project response

As a relatively new utility type, battery storage technology is evolving rapidly. Similarly, for other State Significant Development project components, it is not uncommon to adopt a general description at this stage, leaving detailed component selection until closer to commencement of construction. The detailed design stage commences only *after approval has been granted.* The final specifications and location of infrastructure are subject to change during detailed design, based on the input for further topographic surveys and Project optimisation gained through competitive tender procurement processes. This flexibility is consistent with the *State Significant Development Guidelines – Preparing an Environmental Impact Statement* which states '*… with some large, complex Projects this flexibility is often essential as it is difficult, if not impossible, to deal with all aspects of the design of these Projects at the EIS stage.'*

Areas of uncertainty have been clearly identified in the Project's assessment and strategies to address risks in relation to these are part of the Project. Two common approaches adopted in the assessment are:

1. Assume worst case / upper limit parameters.
2. Build into the mitigation measures specific design requirements.

Specifically, controls set out the PHA hazards register will be implemented throughout all stages of the Project. This is Table 6-52 of the EIS and is included as part of the updated mitigation measures in Appendix B of this document.

The Project provides for a 10m APZ around BESS components, having blocks of containers fitted with automatic fire detectors, monitoring equipment and fire suppressant mechanism in order to properly identify and isolate fire and 20,000L capacity fire tanks. A firefighting cart would also be used for construction which would include fire extinguishers, a 1000L water cart (filled with suitable fittings and diesel firefighting pumps). The access tracks around the site have been designed to allow firefighting trucks to navigate around without issues. These access tracks would also act as an APZ to break spread of fire.

4.3.6. Human health impacts

A. Impact of EMFs

Issue summary

Concerns about the solar farm's electric and magnetic field (EMF)radiation levels near residents.

Submission reference

SE-52106707.

Glanmire Solar Farm Project response

There is low potential for EMF impacts during the construction and decommissioning phases of the Project.

The main source of EMF would be the onsite substation and transformers within this general area, during Project operation. These are located well away from residential receivers and designed in accordance with Australian Standards to ensure they are safe for workers in close contact with them. EMFs attenuate with distance. There would be no impact on nearby residences.

Lower levels of EMFs would also be generated by:

- Solar arrays including cabling and power conversion units.
- Energy storage facility (BESS).

All electrical infrastructure would follow Australian and industry standards, and be designed to minimise EMFs as follows:

E1 – E3:

- *All* electrical *equipment will be designed in accordance with relevant codes and industry best practice standards in Australia.*
- *All* design *and engineering will be undertaken by qualified and competent person/s with the support of specialists as required.*

B. Impact on mental health

Issue summary

Concern that the Project will increase stress for farmers.

Concern regarding the mental and financial stressors required to object this Project.

Submission reference

SE-52840478, SE-52526207, SE-51363997, SE-52828462, SE-52641459, SE-52504963, SE-52498712, SE-52184710, SE-52109210, SE-52571457, SE-52828710, SE-52827457, SE-52819207, SE-52477711, SE-52415715, SE-52276223, SE-52152471, SE-52042957, SE-52038736, SE-51516715, SE-51123212, SE-52163225.

Glanmire Solar Farm Project response

Development projects are known to create stress and uncertainty in people who oppose the project and/or are directly impacted (Prenzel & Vanclay, 2014). It extends to fears about the future, including potential changes to people's home environment and surrounding landscape. These fears have been described as 'solastalgia', which describes the distress caused by environmental change that people experience while directly connected to their home environment. It can be exacerbated by a sense of powerlessness or lack of control over the unfolding change process (Alberecht, et al., 2007). This issue was also discussed in Section 4.3.4 E Effect on social disharmony. It is understood that the experience of some members of the community with the Brewongle solar proposal is also relevant to stress now being experienced in relation to the Project.

These stresses can be seen as being typical of this stage of the Project, and in many cases, this stress can subside once decisions are made regarding the Project's next steps. This can be the case where exaggerated perceptions during the assessment process are replaced by lesser actual impacts once the

projects are constructed (Wilson & Dyke, 2016). It has been observed in Australian and overseas particularly in relation to wind farm development.

Stress may also be exacerbated by the approach to uncertainty used in the EIS. The Glanmire Solar Farm Environmental Impact Assessment uses language such as 'worst case' and 'upper limit' as a way to ensure that assumptions that underpin the assessment are rigorous and will allow some flexibility to the Applicant in the final procurement processes. However, in relation to an individual's perception of the project being described, it can lead to an exaggerated perception of the Project and its impacts.

Through newsletters, community events and the Community Consultative Committee, a common theme communicated by the Applicant has been how the community can have their say (both directly to the Applicant and to the DPE as part of the Projects determination). While avenues to influence the Project have been developed to encourage community participation to address the sense of powerlessness individuals may have in relation to this State Significant Development, it is recognised that the time and cost of participation itself can become a stressor.

CSIRO noted that the strongest driver underpinning acceptance of large-scale solar farms was people's attitudes towards the energy transition and the role renewables play in the transition to a low-carbon domestic energy supply (CSIRO, 2021). They noted that lower levels of acceptance may result where there is less confidence in the planning and implementation of the transition. The Glanmire Solar Farm Project has tried to make clear the important role of the Project in this transition, and the Projects alignment with planning policies aimed at this transition. However, the assessment of the Project has been drawn out and apparent contradictions between the Project and government agencies may undermine confidence;

- The desktop mapping of the site as largely Class 3 land (now refuted by soil surveys) has influenced the opinions of many regarding the site's value to agriculture and particularly impacts on farming activities and the agricultural economy (discussed in more detail in Section 4.3.4 A and D).
- Recent insurance recommendations by the Agricultural Commissioner are being considered by the DPE (discussed in more detail in Section 4.3.3).

These factors may affect the farming community more than others leading to higher levels of stress and less support for solar farm development.

It is acknowledged that although specific efforts to avoid community disharmony are undertaken as part of the Glanmire Solar Farm Engagement Strategy, that some concerns persist regarding the spread of impacts and benefits within the community. The Project team will continue consultation and collaboration with the community and will work towards maximising participation and making clear the local benefits of the Project. Future engagement activities are a commitment of the Project.

4.3.7. Hydrology and erosion

A. Hydrological impact assumptions

Issue summary

Concern that clearing large areas will impact on drainage and increase erosion.

Concern that dam behaviour and the extent of the impervious panel array areas have not been modelled correctly in the assessment.

Suggestion that a NSW Soil Conservation hydrologist should be engaged to independently verify the assessment results.

Submission reference

SE-52828713, SE-52821957, SE-52641459, SE-52526207, SE-52415715, SE-52276223, SE-52152471, SE-52127477, SE-52633987, SE-52448710, SE-52571457, SE-52497487.

Glanmire Solar Farm Project response

Clearing impacts

The Project does not require extensive clearing or land forming. It will use driven-pile foundations to mount the solar panels above the ground. This will result in small areas of disturbance for the array infrastructure; the largest component of the Project. A relatively small area of the site is required for larger footings, including the substation area, and access tracks. The overall soil disturbance is estimated as 4% of the site. Retaining the soil and groundcover within the solar array areas during construction will ensure low levels of impact on local hydrology and protect surface water quality.

Modelling the impact of panels and other infrastructure on the site

It is a common misconception that solar panel arrays, being impervious, increase runoff. However, as the solar panels are arranged in linear modules separated by a distance of approximately 6m, runoff from upslope panels will run under downslope panels thereby affording the opportunity for infiltration under each panel, with the exception of those panels which are most upslope (i.e. only the highest row of panels). When viewed as a whole, the ground surface area underneath the solar panel arrays available for infiltration is almost identical to that which currently exists and therefore any increase in runoff from the site for the arrays would be negligible.

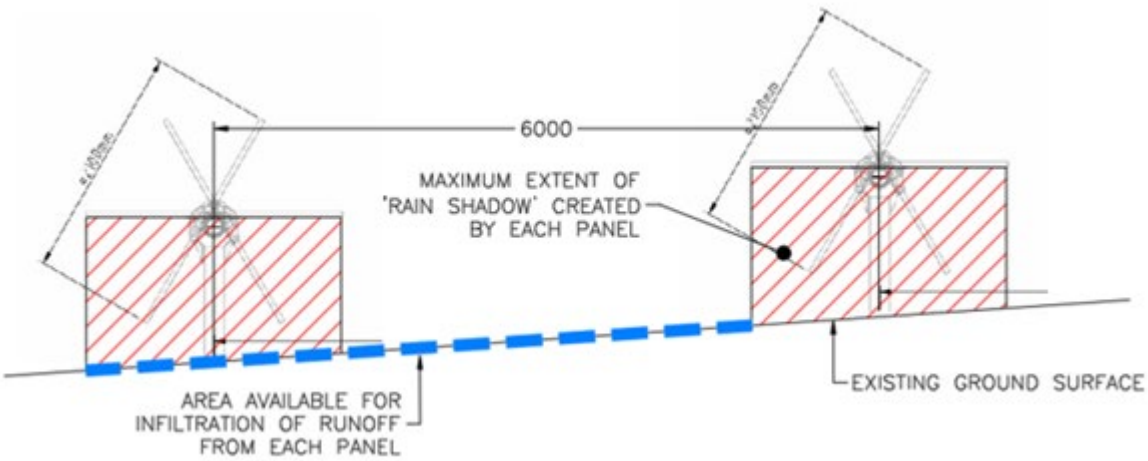


Figure 4-18 Typical tracking solar panel elevation

Introduction of panels mounts, footings and other solar farm infrastructures including access roads has the potential to change the 'roughness' of the ground surface. The change in 'floodplain roughness' associated with the proposed solar project was assessed using the Modified Cowan Method for Floodplain Roughness. This has been demonstrated in Table 7 of Hydrological Impact Assessment (Appendix D5 of EIS).

- The increase in roughness was applied to the pre-development roughness value 2 over the extent of the proposed solar array footprint increasing this roughness to 0.038.
- The area nominated for the proposed substation, battery storage and O&M facilities, including parking areas was assigned a Manning's n value of 3 to reflect the impact of the proposed buildings and structures, including possible filling.
- Access roads would be constructed from gravel and within the floodplain itself would be constructed at or near the existing surface level, therefore, would not result in adverse impact on flood behaviour.

The post development hydraulic model is therefore considered to be representative of the development as proposed and therefore reflective of the hydraulic impacts associated with the development.

Table 4-2 Modified Cowan method for estimation of floodplain roughness (extracted from Table 7; Hydrological Impact Assessment (Appendix D5 of EIS).

Roughness Component	Existing (Grazed Pasture)	Proposed (Solar Array)
Floodplain Material (n_b)	n_b	n_b
Degree of Irregularity (n_1)	n_1	n_1
Variation in Floodplain Cross Section (n_2)	n_2	n_2
Effect of Obstructions (n_3)	0.000	0.003[1]
Amount of Vegetation (n_4)	n_4	n_4
Change in Roughness (n)	0.000	0.003

[1] Based on an obstruction of 2.5% of the available flow area (i.e. 150mm piers at 5-6m intervals)

Modelling dams

In the modelling, existing dams are treated as impervious surfaces. All modelling is with reference to 'desktop' data sources including LiDAR data, topographic maps and the proposed Development Footprint provided by the Applicant. Catchments draining to the proposal area were defined using hydrologic analysis software package Catchment SIM and were derived from the 2m Digital Elevation Models (DEM) covering the area which were obtained through the Australian Foundation Spatial Data web portal. Intensity Frequency Duration (IFD) design rainfall depth data and temporal patterns were derived in accordance with Australian Rainfall and Runoff (2019) using the Bureau of Meteorology's 2019 Rainfall IFD on-line Data System.

The result of this is that existing dams are read as flat surfaces. This is a conservative 'worst case' assumption which assumes the dams are full and 100% run off occurs from them.

Credibility of the assessment

Footprint Sustainable Engineering Pty Ltd prepared the hydrological assessment for the Project. They have assessed upwards of 20 solar farms in the same manner; modelling pre and post development catchment hydrologic behaviour to understand the impacts of solar Projects on local hydrology. All assumptions are contained within the report appended to the EIS.

B. Hydrological impact results

Issue summary

Concern that neighbouring properties will be affected by panel run off changing surface water flows, changes to flooding. This could affect assets including dams, roads, fences as well as local waterways' bank stability and erosion. Suggested that all water flow should be contained within site.

Submission reference

SE-52127477, SE-5244871, SE-52152471, SE-52461710.

Glanmire Solar Farm Project response

Modelling surface flow changes

With regard to the increase in runoff due to panels and other infrastructure and the concentration of runoff due to the project, the hydrologist takes a 2 stage approach, modelling:

1. The catchment's run off and flooding characteristics in the site's current state (no solar farm onsite). The result is produced in the form of a hazard map and the early layout planning is done to avoid the higher hazard areas.
2. The model is rerun using the indicative infrastructure layout to see the effect of this on the catchment's run off velocity, amount and flooding potential. The layout used is a worst case. It is slightly larger than the final layout that will be developed as it includes some areas that other studies will define as exclusion zones (ie visual impact exclusion zone).

The hydraulic model was re-run to assess the impact of an increase in surface roughness on flood behaviour for the 1% AEP event (1% Annual Exceedance Probability is used to describe how likely a flood level will be exceeded in any one year). The results demonstrate that there is not predicted to be a significant impact on flood behaviour for the 1% AEP event because of the proposed works.

The flood level, depths, velocities and hazards remaining largely unchanged. Velocities over the Project site are shown to be contained in the range of plus or minus 0.25m/s when compared to pre-development velocities and therefore, would not result in any adverse impact to the stability of the bed and banks of existing waterways or contribute to degradation of the land by erosive flood forces.

The aim of the hydrology assessment is to provide information to ensure the project is designed, constructed and operated to have no adverse impact on local hydrology. The second set of modelling results have been used to verify the Project presented in the EIS will meet these criteria and thereby ensure no adverse impact on any adjacent properties or their assets is anticipated, due to the project.

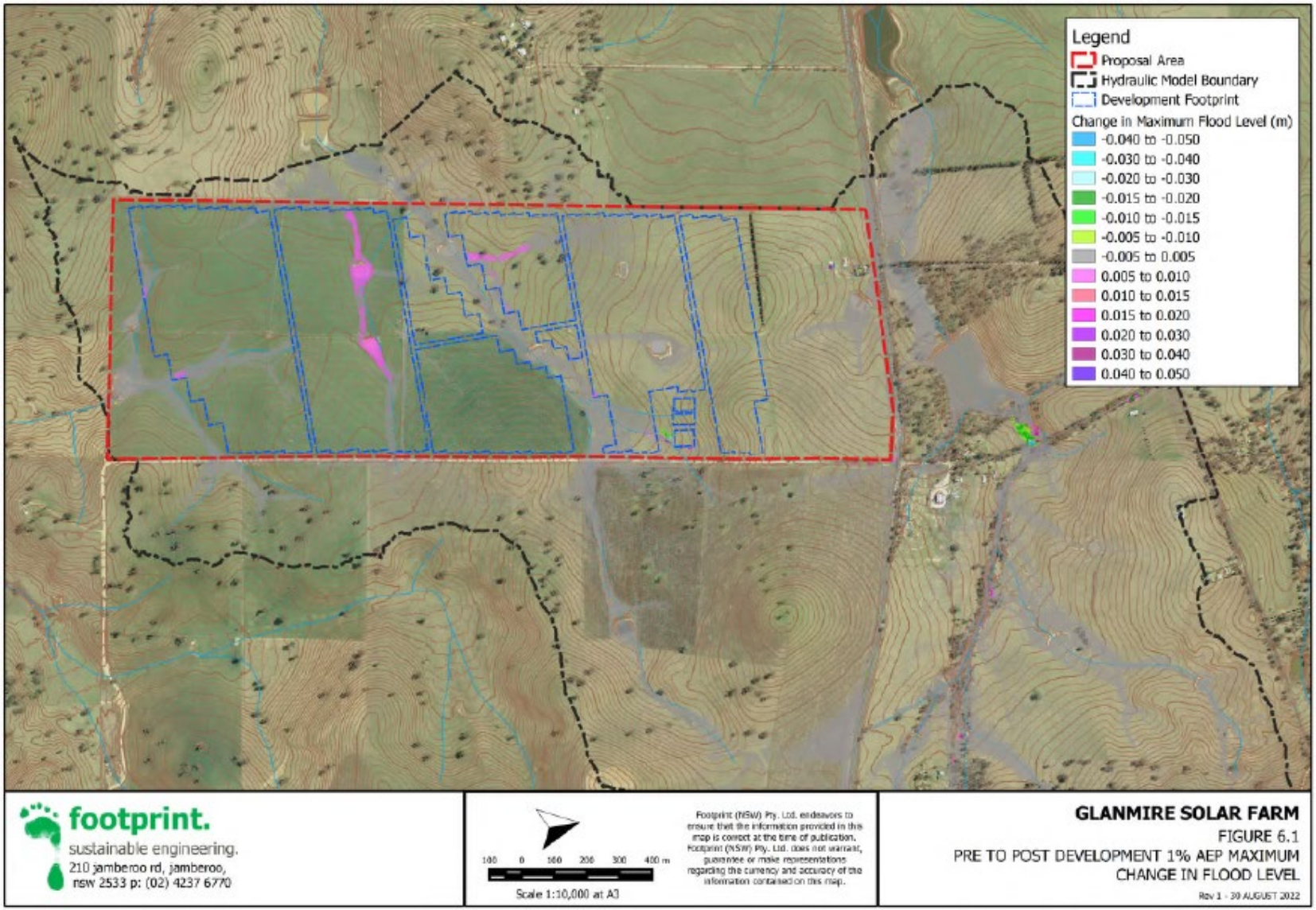


Figure 4-19 Change in flood level anticipated as a consequence of the Project

4.3.8. Decommissioning waste and resource recovery

A. Options for safe waste disposal / recycling

Issue summary

Concern regarding disposal of the panels / recycling options.

Concern regarding the impact of hazardous substances with the panels, chemical may leach into soils, buried infrastructure will be left on site affecting later uses of the land.

Concern that the pace of technology will mean the infrastructure will be obsolete in and the developer / operator will abandon the site.

Submission reference

SE-52600457, SE-52158209, SE-52821957, SE-52637003, SE-52276223, SE-52152471, SE-52633990.

Glanmire Solar Farm Project response

Composition and recycling options

Decommissioning of the site would involve the recycling or reuse of materials including:

- Solar panels and mounting system.
- Metals from posts, cabling, fencing.
- Buildings and equipment such as the inverters, transformers and similar components would be removed for resale or reuse, or for recycling as scrap.

Refurbishment may occur before this time; it is noted that the energy payback time for solar panels is estimated to be 1.5 years on average (Fraunhofer ISE 2015). Hence, there may be sustainable and economic arguments to upgrade panels.

The panels are primarily constructed from glass, graphite, and copper. The vast majority of solar panel materials can be recycled. Items that cannot be recycled or reused would be disposed of in accordance with applicable regulations and to appropriate facilities. The panels do not expose any hazardous chemicals unless broken. Any broken or damaged panels will be replaced as quick as practicable therefore, the risk of any hazardous chemicals being leached to the ground is very low.

The Project commits to these panels being recycled in a facility capable of recovering 100% of the end-of-life solar PV modules and all associated materials. It is to be noted that recycling facilities are limited in Australia as most of the large-scale solar farms are still in the early stage of operating and there is limited supply for the recycling facilities. As more solar farms near end of life, there will be more supply and the number of recycling facilities is expected to increase. NGH has identified a Victoria based company has capability to recycle and recover 100% of the raw materials. No solar panels will end up in landfill.

The Clean Energy Council of Australia has recently noted the following national solar PV recycling research projects/funding taking place:

1. The NSW Government has committed $10 million to boost solar panel recycling.
2. Researchers at Deakin University working to develop a solar panel recycling solution to recycle silicon.
3. $15.14 million awarded through the Australian Renewable Energy Agency (ARENA) to support research teams at six Australian universities including investigating new solutions, including upfront solar PV panel designs and end of life processing, that increase the cost-effectiveness of sustainable end-of-life management of solar PV panels.

Figure 4-20 Waste hierarchy

Future options and opportunities

The rapid pace of solar technology change is part of the rapid expansion of the solar industry in NSW. There are emerging opportunities, which will be amplified by the development of the Renewable Energy Zones, for the industry to seek more sustainable opportunities in terms of both material sourcing and disposal options for large scale solar developments. Community and business initiatives could see substantial benefits from Project waste streams during construction as well as through decommissioning such as:

- Timber and metal supplied to trade schools and local craft workshops.
- Composted materials supplied to local gardeners and farms.
- Biowastes treated to allow for use as an agricultural land treatment.

As part of the decommissioning stage, the Project commits to remove infrastructure to a depth of 1000mm below ground level to ensure cropping could be reinstated. This protects future land use opportunities.

B. Funding decommissioning

Issue summary

Concern that funds for decommissioning and rehabilitation should be guaranteed, as done for mining.

Submission reference

SE-52448710, SE-52415715.

Glanmire Solar Farm Project response

Solar farm development does not require extensive landform impacts like mining, where site restoration actions would be many times more expensive. Further, the assets (panels, inverters, cables) are expected to retain some value after the Project is completed. As set out above, there are strong recycling commitments and the value of many of the components will assist to fund this stage. The Project has committed to recycling all materials that are suitable for recycling including recycling 100% of panels.

The Glanmire Solar Farm Project has a standard decommissioning clause of 12 months to remove any improvements and pay rent whilst doing so. There is a bank guarantee of 6 months' rent, and this is to be put in place on the Practical Operation Date which can only be called upon for a default in make good obligations.

C. Emissions accounting

Issue summary

Concern that the Project would create more emissions than it reduces.

Submission reference

SE-52158209

Glanmire Solar Farm Project response

When compared to the major electricity generating methods employed in Australia, solar farms are favourable in terms of CO_2 emissions generated per kilowatt hour of energy produced. Refer to the table below.

Table 4-3 Comparison of CO_2 equivalent emissions produced per kilowatt hour for the lifecycle of the asset.

Generation method	Emissions produced (grams CO_2 equivalent per kWh)	Source
Photovoltaic solar farm	19–59	Wright and Hearps (2010)
Coal-fired power station	800–1,000	Wright and Hearps (2010)
Combined cycle gas turbine	400	Alsema *et al*. (2006)

D. Material breakdown

Issue summary

The submission requests a specific breakdown of materials needed to manufacture and construct all parts of the Project, including sources and disposal options.

Submission reference

SE-52158209.

Glanmire Solar Farm Project response

The specific components and materials required for the Project are outlined in the EIS. They are not detailed because, common to most State Significant Development, the detailed design stage commences only *after approval has been granted.* This flexibility is consistent with the *State Significant Development Guidelines – Preparing an Environmental Impact Statement* which states:

> '*… with some large, complex Projects this flexibility is often essential as it is difficult, if not impossible, to deal with all aspects of the design of these Projects at the EIS stage.'*

Solar technology is rapidly changing, and the final specifications and location of infrastructure will be developed based on further Project optimisation gained through competitive tender processes.

A typical solar array for this scale will typically use following approximate material quantities (Solar Edition, 2023):

Glass: 4,200 tons

Steel: 3,360 tons

Concrete:	2,820 tons
Aluminium:	1,140 tons
Silicon:	420 tons
Copper:	420 tons
Plastic:	360 tons

These are only estimates and the final quantities depends on the material selected at the time of construction. Similarly for batteries, inverters and substation, all materials depend on the manufacturer. The materials that are used to manufacture these components are: Lead Acid, Lithium, Nicad (Nickel Cadmium), NiFe (Nickel Iron).

Some of the components in the battery system are hazardous in nature. Since all these materials are enclosed in a shell (usually plastic), they pose very insignificant risk to the environment. Leakage or fire can increase the risk to the environment however, these risks are dealt by maintaining a containment system for spills and having a robust fire suppressant and management systems.

Inverters are normally used in households to convert DC energy from household solar panels to AC. The system used for this solar farm will utilize similar inverters but will be of larger scale. Inverters have an outside cover which shields the inner components from the environment keeping the risk of environmental pollution to a very low.

The substation will be similar to any existing substation used for electricity transmission. The proposed substation will follow all the safety guidelines and will have proper containment and buffers from the surrounding land.

As above, sourcing will be subject to competitive tendering processes, part of detailed design phase post approval. Disposal options are developing rapidly as this industry becomes more established in Australia, sufficient that the Project can commit to very high recycling objectives. NGH has identified a Victoria based company has capability to recycle and recover 100% of the raw materials of panels. Other initiatives have been noted in Section 4.3.8 A Options for safe waste disposal / recycling which addresses waste management and disposal options more fully.

E. Ability to reverse Project / recycle components (Support)

Issue summary

States that solar farms are also considered highly reversible and solar panels are now recyclable; at the end of life of the Project, it is expected that the land will be returned to full agricultural use. States that this also reduces the long-term impact of the solar farm.

Submission reference

SE-52506457, SE-52519217.

Glanmire Solar Farm Project response

The Project feels confident to commit to recycling and decommissioning commitments on the basis of rapid development in the space. This will ensure the best outcomes are obtained for the site in the long term:

- *S7 A* Rehabilitation *Plan would be prepared to ensure the array site is returned to at least or better than pre-solar farmland and soil capability during the decommissioning stage…*
- *R4* Solar *panel arrays would be recycled at a facility with the capacity to recover 100% of the end-of-life solar PV modules and all associated materials.*

4.3.9. Biodiversity

A. Removal of trees

Issue summary

Concern that mature trees will be removed as part of the Project; there are not many old trees remaining onsite.

Submission reference

SE-52526207, SE-52276223.

Glanmire Solar Farm Project response

State Significant Development projects are subject to stringent biodiversity assessment and offset requirements. Part of the assessment process demonstrates the Project has avoided and minimised impacts as much as possible, so that offsets are a last resort.

The Project will require removal of six trees. The removal of these trees will generate six ecosystem credits which would need to be offset. The Project's offset obligation will be met in accordance with the NSW Biodiversity Offsets Scheme (BOS), and will be achieved by either:

a) Retiring credits under the Biodiversity Offsets Scheme based on the like-for-like rules, or
b) Making payments into the Biodiversity Conservation Fund using the offset payments calculator, or
c) Funding a biodiversity action that benefits the threaten entities impacted by the development.

While it is acknowledged that trees will take time to grow, this long term project has also proposed revegetation of the stream that runs through the centre of the Project as well as a substantial natural planting along the southern boundary and on balance will enhance habitat in the locality.

B. Biosecurity risks

Issue summary

Concern that increased vehicle movements will increase biosecurity risks, specifically during construction.

Submission reference

SE-52415715, SE-52821957.

Glanmire Solar Farm Project response

No specific pathogens, weeds or pest animals were identified for this site. Commitment B7 requires a Biosecurity management strategy be developed prior to construction to ensure that none are brought in. The management of weeds, pests and diseases are anticipated to be undertaken through standard well understood protocols such as:

- Machinery and soil hygiene protocols to ensure pathogens are not brought to or taken from the site to other areas.
- Treatment of any weed infestations prior to vegetation clearing.

The plan would be required to be submitted to DPE prior to works commencing.

C. Species identified / targeted in the assessment

Issue summary

Concern that specific species and communities have not been addressed; Eastern Grass Owls that live and hunt onsite, Critically Endangered Ecological Community, Superb Parrot and Southern Myotis.

Submission reference

SE-52182457, SE-52633987

Glanmire Solar Farm Project response

The NSW Biodiversity Assessment Method is highly prescriptive in the species determined to be 'candidate species' and requiring detailed assessment. While the vegetation would have been derived from Box Gum Woodland, which qualifies as a Critically Endangered Ecological Community at both State and Federal levels, subject to its condition and extent, the vegetation onsite at this time has been highly modified by agricultural practices and the community would not be considered a Critically Endangered Ecological Community at the State or Federal level.

The Eastern Grass Owl *Tyto longimembris* was not returned as a candidate species. It was therefore not subject to specific surveys nor identified during other surveys onsite.

Updates have been made to the BDAR, attached as Appendix D to this document, to address BCD comments in relation to Superb Parrot and Southern Myotis:

- A species polygon for Southern myotis has been extended to align with recent changes in the species listed habitat constraints. The species polygon now includes impacted dams in the Development Footprint and all Zone 1 (PCT1330) vegetation.
- The species polygon for Superb Parrot has been expanded to include all Zone 1 vegetation, where it previously only included the dripline of hollow-bearing trees in the Development Footprint.

The updated offset requirement for the Project is now shown in Table 4-4:

Table 4-4 Impacts that require an offset - species credits

Species credit species	Species credits required
Superb Parrot (*Polytelis swainsonii*)	4
Southern Myotis (*Myotis Macropus*)	4

D. Riparian corridor buffers

Issue summary

Concern that the riparian corridor buffers for the watercourses are not in accordance with the NSW Department of Industry Guidelines for controlled activities on waterfront land: Riparian corridors (Riparian Corridor Guidelines).

Submission reference

SE-52633987.

Glanmire Solar Farm Project response

A riparian buffer 40m wide (20 m either side) has been implemented for two second Strahler order waterways which will include the retention of several large native trees. This is consistent with recommendations from the Guidelines (DPE, 2022d). The inclusion of restoration areas / screening vegetation which can be enhanced by including native vegetation associated with the existing plant community type will also be beneficial for the habitat and water quality values provided by these features.

Two waterway crossings are required but also commit to design and restoration in accordance with best practice guidelines:

W1 Works in waterways

- Designed *to minimise any hydraulic impact in accord with Laying Pipes and Cable in Watercourses on Waterfront Land (NSW DPI, 2012b).*
- Crossings *designed in accordance with Guidelines for Watercourse Crossings on Waterfront Land (NSW DPI, 2012a).*

E. Low biodiversity impact (Support)

Issue summary

Suggests that as the land has been used for many years for agriculture, and has very little tree cover, the Project will have minimal impacts on biodiversity.

Submission reference

SE-52519217

Glanmire Solar Farm Project response

The biodiversity assessment is in agreement with these statements; even so, the Project has been designed to avoid remaining habitat elements where possible and to manage risk to biodiversity onsite and to surrounding land, as part of construction and operation.

4.3.10. Traffic and transport

A. Risks on Brewongle Lane

Issue summary

No mention of Brewongle Lane being upgraded; additional construction traffic will increase the traffic risks.

Submission reference

SE-52827497, SE-52448710, SE-52426488, SE-52182457.

Glanmire Solar Farm Project response

While the Traffic Impact Assessment undertaken by Amber Organisation Pty Ltd did not recommend sealing Brewongle Lane, the Project does (and did in the EIS) commit to sealing the section between the Great Western Highway intersection and the site access off Brewongle Lane.

The Australian Road Research Board (ARRB) Guide notes that roads may warrant paving when maintenance costs increase to unacceptable levels, in wet climates, or when economic or social benefits are evident. Given the expected traffic volume on the local roads is in the order of 200 vehicles per day and the increase in traffic is only temporary, it is considered acceptable for Brewongle Lane to remain unsealed. However, the Project sees sealing the road as a more appropriate response in this case to address impacts on Council assets and road safety concerns.

Additionally, in order to improve safety and traffic management, there is a provision of consulting and notifying near neighbours of major deliveries.

B. Risks at the Brewongle Lane intersection with the highway

Issue summary

Concern that construction traffic will cause the intersection to be more dangerous.

Submission reference

SE-52816233.

Glanmire Solar Farm Project response

The Traffic Impact Assessment undertaken by Amber Organisation Pty Ltd identified that for a safe operation of this intersection, a Basic Left Turn (BAL) and Channelised Right Turn (CHR) are needed. These turn facilities are already provided for the intersection.

The study conducted Sidra analysis to determine the queue length generated within the right turn lane from GWH. The analysis indicated a 95th percentile queue of 0.2 vehicles or 1.1m. Accordingly, the existing intersection layout is expected to be able to safely allow vehicles to turn from the State Road network.

Additionally, a swept path assessment was conducted for Brewongle Lane which came to a conclusion that B-Double vehicles can suitably turn to/from the Great Western Highway.

This analysis proves that there is no additional risk to the intersection because of additional traffic. Additional details regarding traffic are provided in the updated TIA, Appendix E of this document.

C. Vehicle access route

Issue summary

Concern that vehicles may enter the Project site access south from Brewongle Lane rather than north from Great Western Highway.

Submission reference

SE-52526207.

Glanmire Solar Farm Project response

The EIS describes the Traffic Impact Assessment describe that '*all vehicles will enter the site from Great Western Highway and Brewongle Lane'*. No access from the south via Brewongle Lane s proposed.

4.3.11. Water supply and use

Issue summary

Suggests that 0.5L of water to wash each solar panel is unrealistic in operation; Brewongle Lane is very dusty and will increase requirements; has the cost of cleaning been considered.

Concern that the Project will have a large demand for water.

Submission reference

SE-52504963, SE-52828713, SE-52184710, SE-52526207, SE-52415715.

Glanmire Solar Farm Project response

Operational water requirements for solar farms are relatively low. Water required for panel cleaning will depend on precipitation and dust accumulation. It is expected that approximately 23,000 litres of water will be required per cleaning. The final panels selected may also influence cleaning requirements; some panels are effectively self-cleaning. The cost trade-offs will be considered in the final selection of components, through detailed design planning and competitive tender processes.

The water requirements for the Project have been estimated and compared to anticipated water source options. The Project would require a total of 28ML of water during construction. This includes 20ML of non-potable water and 8ML of potable water. Nearest water sources have a combined 162 licences for unregulated river water with a total share component of 10,903.5ML in 2020–2021. The maximum water required for the Project (28ML) is 0.3% of the available unregulated water. In the year 2020–2021, 125.3ML water was used from these allocations, which represented 1.2% of the available unregulated water. The impact of drawing the 28ML for 1 year is minor as over 10,700ML of remaining water is available in the system based on this year's figures. This impact on local water supply is considered minor.

4.3.12. Noise impacts

Issue summary

Concern about assessment of noise from the BESS; no mention of noise abatement plans in the EIS.

Concern about the proximity to residences.

Submission reference

SE-52426488, SE-52415715.

Glanmire Solar Farm Project response

The noise assessment considers construction noise, traffic noise and operational noise and was provided as Appendix D6 of the EIS). It is considered conservative in its assessment of noise in that, it adopts a 'worst case scenario' in terms of infrastructure parameters and concurrent operation of equipment. It also assumed rural background noise levels, rather than use actual noise logging, which may be impacted by highway and farm machinery noise. This set the base line lower and is considered a conservative treatment.

Specific to operational noise, the following equipment were modelled; this includes the BESS inverters and transformers.

Table 4-5 Typical operational plant and equipment and sound power levels

Plant Item	Plant Description	L_{Aeq} Sound Power Levels, dB(A) re. 1pW
1	NEXTracker motor (2,125 in total)	50 (each)[1]
2	SMA SC4200 inverter stations (18 in total)	93 (each)[1]
3	HV transformer (1 in total)	72 (each)[1]
4	Light vehicle (5 in total)	88 (each)[2]
5	BESS inverters and transformers (17 in total)	93 (each)[2]

Notes: 1. Based on sound power level data provided by the manufacturer or the client
2. Based on sound power level data from past projects and/or RT&A's acoustic database

No operational noise exceedances are predicted at any nearby dwelling, or 3 future dwelling locations identified by near neighbours. While a complaints process will be in place for all stages of the Project, noise management measures centre on the construction phase and a noise management plan covering this phase only.

N3 A noise management plan would be prepared and implemented … Prior to construction …

4.3.13. Aboriginal heritage value

Issue summary

Concern over lack of respect shown to Wiradjuri people, the traditional custodians of the land.

Submission reference

SE-52817235.

Glanmire Solar Farm Project response

Elgin Energy and the assessment team wish to acknowledge their great respect for the Wiradjuri people and their long history in and around Bathurst area. The team was committed to best practice in consultation and assessment activities. This included:

1. Engagement through the Engagement Action Plan; Traditional Owners – Indigenous community stakeholders were identified as Wiradjuri Registered Aboriginal Parties (RAPs) and Local Aboriginal Land Council (LALC). The engagement looked for opportunities to contribute to the local story of

country and contribute to the local Aboriginal Community. It also sought to involve local community organisations in Community Benefit Sharing initiatives.

2. Formal consultation in relation to potential to impact Aboriginal cultural heritage was also undertaken and documented in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Applicants (DECCW, 2010a). This included involvement within the Aboriginal Cultural Heritage Assessment (ACHA) survey program and review of the assessment findings in a statutory review period before the report was finalised.

As the Project progresses, future engagement commits to use appropriate engagement techniques, for example for Aboriginal and Torres Strait Islander groups where engagement should be planned and undertaken by Indigenous Engagement specialists.

4.3.14. Climate change

Issue summary

Concern that the expected impact of climate change over the next 40 years (more intense rainstorms, effects on land use / soil properties) not fully considered.

Submission reference

SE-52497487.

Glanmire Solar Farm Project response

The context of climate change is very relevant to rural locations. Projected climate change impacts for the Central West and Orana Region of NSW can be expected to adversely impact many sectors of the environment, community and economy. With specific reference to the central west, the EIS included a graphic showing climate change predictions cited by NSW OEH 2014 including near future (to 2039) and far future (to 2079) predictions such as:

- Increase maximum temperatures in near future by 0.4–1.0°C in near future and the far future by 1.8–2.7°C
- Increase minimum temperatures by 0.5–0.9°C in near future and 1.5–2.6°C in the far future.
- Increase in number of hot days and decrease in number of cold nights.
- Decrease in spring rainfall and increase in autumn rainfall.
- Increase in average fire weather in summer, spring and winter and increase in severe fire weather in summer, spring and winter.

in this context, the Project provides additional renewable energy that contributes to minimising the risk of climate change to current and future generations by reducing the carbon emissions produced in comparison to alternative fossil fuel electricity generation options. The Project would assist in the transition to renewable energy generation including displacing approximately 130,000 metric tonnes of CO_2 per annum[8].

For an estimated lifespan of 40 years, the development would contribute to mitigating the effects of climate change. Further with the changes affected to the Essential Energy connection, it will be part of the grids to transition to more renewably sourced energy sources.

[8] Based on a 0.81kg CO2(e) / kWh emission factor for NSW and average consumption of 18kWh per day.

Specific to the effect of the Project on the site's soils, there are many advantages to lessening agricultural practices over the life of the Project;

- Less soil disturbance to soil structure from cropping and harvesting activities.
- Less grazing intensity, specific triggers used to ensure a perennial cover is maintained as far as practical.
- Shading and microclimate effects likely to enhance soil moisture and reduce compaction, under the arrays, in comparison to agricultural use.

Being highly reversable, when the infrastructure is removed, it is expected the soil capability will be the same or better than current day, which cannot be guaranteed under current cropping and grazing activities.

4.4. Planning instruments

Issue summary

Concern that the Project conflicts with planning instruments, including:

- State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI) – being close to a regional city and Raglan.
- Section 4.15(b) and (c) of the Environmental Planning and Assessment Act 1979 (Act) – with reference to impacts on the natural environment in the locality.
- Local Environmental Plan, regarding rural use limitations and potential limitations on the future growth of the Regional City of Bathurst.
- Bathurst Regional Development Control Plan location – requiring a 50 metre setback.

Concern regarding potential land use conflicts, particularly with existing commercial (agricultural) uses of the surrounding land.

Submission reference

SE-52846217, SE-52839989, SE-52839973, SE-52831466, SE-52828726, SE-52827467, SE-52827465, SE-52817238, SE-52603207, SE-52600457, SE-52498712, SE-52415715, SE-52106707, SE-52131526, SE-52633987, SE-52448710, SE-52571457, SE-52276223, SE-52163225, SE-52082474, SE-52077235, , SE-52817240, SE-52182457, SE-52152471, SE-52426488, SE-52840480, SE-52839979, SE-52827492, SE-52827457, SE-52821957, SE-52819209, SE-52817235, SE-52817225, SE-52817219, SE-52817217, SE-52817213, SE-52816229, SE-52504963, SE-52497487, SE-52250471, SE-52184710, SE-52127477, SE-52124466, SE-52082490, SE-52461710, SE-52828460.

Glanmire Solar Farm Project response

State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI)

The TISEPP provides for the specific consideration of renewable energy Projects in regional cities, including Bathurst. 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:

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

A Land use risk conflict assessment (LUCRA), supported by a traffic and visual impact assessment have considered these matters.

- LUCRA identified the highest conflict potential was with noted agricultural activities finding:
    - No impact on adjacent agricultural operations is likely, either to the agricultural equipment, activities or soil capability. The construction phase and operational phase fire risks require careful management in the design as well as through the life of the Project.
    - Construction risks to soil and water are noted but considered highly manageable and likely to be offset by longer term benefits of less intensively worked land in operation.
- Rural residential conflicts were assessed as most relevant to:
    - Traffic disruption, dust and noise which may affect nearby residents temporarily, during peak construction. These are considered highly manageable.
    - Operational views from dwellings may reduce enjoyment of these areas. Screening is able to mitigate impacts to an acceptable level (low).
- Regional growth conflicts:
    - As it is not located in a residential expansion zone, operational views from the only relevant regional vista, the Great Western Highway / eastern entrance to Bathurst, may affect landscape scenic value. Project setbacks / exclusion zones and screening are able to mitigate impacts to an acceptable level (low).

No impacts are expected that would infringe the aims and goals of the Renewable Energy and Regional Cities section of the TISEPP. The overall assessment determined that no significant impact on the scenic quality and landscape character of this regional city will result. With the mitigation measures proposed, there would be some improvement to the landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

Environmental Planning and Assessment Act 1979

Sections 4.15 b and c relate to:

> (b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.
>
> (c) the suitability of the site for the development.

The EIS has been prepared to address the Secretary General's Environmental Assessment Requirements, as required under part Section 4.12(8) of the act. This can be seen in Appendix A of the EIS, which is a cross reference table to where these matters are addressed in the EIS, to include specific consideration of natural and built environments and social and economic impacts. The corresponding sections and key results are as follows:

Visual impacts	Section 6.1 and Appendix D.1	• No more than low impact on any residence.
Biodiversity impacts	Section 6.2 and Appendix D.2	• Impacts are considered able to be offset, have demonstrated the 'avoid, minimise and only then offset' mandate.
Heritage impacts	Section 6.3 and Appendix D.3 (Aboriginal) Section 6.9 and Appendix D.9 (historic)	• Two artefacts can be protected, within riparian exclusion zone. • Low impacts on Woodside Inn, due to set backs.

Noise impacts	Section 6.6 and Appendix D.6	• No highly affected receivers. • Construction noise can be managed for 4 dwellings when works occur within 700m. • No operational exceedences.
Traffic impacts	Section 6.8 and Appendix D.8	• The network is able accommodate the traffic however, an upgrade will be undertaken to seal Brewongle Lane to the site access.
Water impacts	Section 6.5 and Appendix D.5	• Low risk of impact on local hydrology or surface water quality
Socio-economic impacts	Section 6.7and Appendix D.7	• Potential to exacerbate pressures on housing can be addressed in an Accommodation and Employment Strategy. • Significant benefits would accompany construction and operation where local skills, employment, community investment and a local contribution to climate change accrue.

The suitability of the site has been evaluated with specific reference to the DPE guidelines (2018) as well as the draft 2021 guidelines. It has considered solar resources, suitable land, capacity to rehabilitation, community support, proximity to the electrical network, connection capacity. It has considered the REZ locations, regional cities, important agricultural land, visibility, heritage, biodiversity and natural hazards.

The EIS demonstrates that the likely impacts of the Project can be managed acceptably and that the suit is suitable against these criteria. The specific evaluation is provided as Table 2-1 and 2-2 of the EIS and is not duplicated here.

Local environmental plan

Bathurst Local Environmental Plan (Bathurst LEP) has zoned the land as RU1 Primary production whose objectives as listed in LEP are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To maintain the rural and scenic character of the land.
- To provide for a range of compatible land uses that are in keeping with the rural character of the locality, do not unnecessarily convert rural land resources to non-agricultural land uses, minimise impacts on the environmental qualities of the land and avoid land use conflicts.

The Project is consistent with these objectives. Specifically, this Project will diversify the local economy, providing a drought and flood resilient income steam complementary with adjacent rural land holdings. Upon decommissioning the land capability would be as it currently is or in better condition, allowing for continued agricultural use if preferred by the landowner at this time. This Project will have a low impact on landscape character and may enhance landscape character overall, due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

While State Significant Development is not required obtain a local government Council approval for the Project as a whole, Council are considered a key stakeholder, and affected landowner, as and asset manager

of Brewongle Lane). As such, the Applicant has considered it important to align with local planning policies and obtain Council support for the broader Project as much as possible.

Bathurst Regional Development Control Plan

This Plan controls development under the Bathurst Regional Local Environmental Plan 2014 (LEP). As above, a State Significant Development is not required obtain a local government Council approval for the Project as a whole but seeks to align with local planning policies as much as possible. Council approval will be sought for the subdivision of Essential Energy assets in the detailed design phase.

Other instruments

This Project is consistent with local land use planning instruments. The Bathurst Community Strategic Plan (Bathurst CSP) has identified generation of renewable energy as one of the top three action areas for the council. A majority of people (73.6%) rated this as moderately to extremely important. This Project aims to deliver this renewable Project which is widely accepted as an important development in the area.

4.5. Justification

4.5.1. Cost benefit analysis

Specific detail is sought to justify the costs of the Project, including:

- Detail the typical energy demand for these 28,000 homes the Project will supply and whether the energy will be available during peak times.
- Show calculations for the statement that approximately 130,000 metric tonnes of CO2 per annum would be displaced.
- What changes to global carbon emissions result from this Project, in gross and net terms?
- What changes to global temperature results from this Project, in gross and net terms?
- What is the energy in versus energy out of this Project?
- How are components manufactured (or raw materials mined) in other countries accounted for in emissions accounting?
- How are transport costs accounted for?
- How is vegetation clearing accounted for?
- How are transmission costs accounted for?
- Show the CO2 to be released and saved as a timeline.

Submission reference

SE-52637003, SE-52158209, SE-52633990

Glanmire Solar Farm Project response

These three submissions make clear that there is a valid concern over whether the impacts of the Project are justified in terms of the contribution the Project will make to reducing emissions.

The Project has considered its specific generation potential at this location to estimate the energy it can generate (up to 60AC or 77DC). In terms of emissions accounting and homes that could be supplied, industry tools provide equivalencies in terms of typical solar emissions in comparison to other generation sources and typical house usage to enable the Project's contribution to be discussed in a more meaningful way. The Project has used:

- The average electricity usage per household in the state of NSW; 18kWh per day.

- A 0.81kg CO2 (e) / kWh emission factor sourced from the Residential Energy Consumption Benchmark Final Report for the Australian Energy Regulator (Frontier Economics Pty Ltd, 2020)
- Considering the Project intends to install 60MW of solar panels, at 40 grams of CO_2 equivalent per kilowatt the Project would produce an estimated 2.4 metric tonnes of CO_2 over the life of the farm. Emissions values as per the US National Renewable Energy Laboratory (VREL, 2012)

The 130,000 metric tonnes of CO_2 per annum figure is calculated by multiplying the produced energy of the project per year by the emission factor.

It is important to note that the energy produced by the Project will be connected to the grid. From here it is distributed, not to specific houses at specific times, but on demand. Grid administration is not part of the Project nor in the control of the applicant.

The Project has accounted for all costs to construct, operate and decommission the Project (inclusive of its environmental mitigation strategies and community benefits and the $1.5–2M transmission upgrades required to connect the Project), to demonstrate the Project is financially viable.

The Project has consulted with Essential Energy to ensure that energy can be connected to the grid, to demonstrate this agency is accepting of the Project's contribution to the network.

The Project has not elected to undertake a project specific emissions accounting exercise. It is correct to say that that solar power has CO_2 emissions, since PV modules and other components are made of materials that are mined and processed. The delivery of equipment to site and the construction also generate carbon dioxide, however according to the US National Renewable Energy Laboratory it is estimated that solar power produces lifetime emissions of 40 grams of CO_2 equivalent per kilowatt installed (NREL, 2012). But it is noted that in operation, the electricity generated is emissions free.

A 'life cycle' assessment could be undertaken to estimate energy in and 'pay back' periods. This considers the total life cycle of materials used, being the total amount of energy consumed in procuring, processing, working up, transporting and disposing of the respective materials (Schleisner, 2000). A life cycle assessment has not been completed specifically for this Project however regarding key components, it is noted that when compared to the major electricity generating methods employed in Australia, solar farms are favourable in terms of CO_2 emissions generated per kilowatt hour of energy produced, short energy payback time in comparison to the life span of the Project and the potential to reuse and recycle component parts.

D. Climate change justification

Issue summary

Concern that the key driver of the Project, climate change is not substantiated.

Submission reference

SE-52839987*.*

Glanmire Solar Farm Project response

It is acknowledged that there is still widespread belief that the effects of climate change are not caused by human activity or are not cause for concern in Australia; Australia was ranked last in 2021 among 200 countries for its actions to address climate change.

The Intergovernmental Panel on Climate Change, however, has prepared comprehensive assessment reports about knowledge on climate change, its causes, potential impacts and response options that is well regarded. The 2021 IPCC report says that within a decade, global warming could push temperatures to 1.5 degrees Celsius above pre-industrial levels and calls on policymakers to take urgent action on climate

change (https://www.ipcc.ch/reports/). Their work is driving real action internationally; in 2015, as part of the Paris Agreement, all signatory governments had agreed to try to stop warming at 1.5C.

Domestically, federal, state and local planning policies reflect the need to transition to renewable energy production, as cited in the EIS specific to this Project.

E. Non-polluting electricity generation (Support)

Issue summary

Suggests that this is a non-polluting electricity generation; fits with net zero energy targets of both the NSW Government and the Federal Government.

Submission reference

SE-51208285, SE-51191513, SE-51085713.

Glanmire Solar Farm Project response

The Project aligns with global, national, state-wide and local initiatives to address climate change and transition the grid to more sustainable energy generation options, as coal power plants which much higher emissions per kWhr are retired. Refer to comparison, Table 4-3 Comparison of CO_2 equivalent emissions produced per kilowatt hour for the lifecycle of the asset.

F. Long term impacts (Support)

Issue summary

Suggests the project provides better long-term effects that agriculture and that continued farming could become unsustainable in this location as the climate warms / during droughts.

Submission reference

SE-51208285.

Glanmire Solar Farm Project response

The Project assessment ground validated soil properties and agricultural capability in terms of these parameters. The assessment found that current state government desktop mapping overestimates the agricultural capability of this property; rating much of it as Class 3 – important agricultural land. The Project's soil analysis, and consideration of climate, topography, hydrology, geology, soil landscapes, vegetation and current agricultural use that are brought together in the Project's Agricultural Impact Statement, verify that, taking a conservative assessment, the site contains much less Class 3 land than shown by the state government desktop mapping. This assessment (Appendix F) has been updated as part of the Submissions Report to ensure a much higher level of survey effort and thereby confidence in the findings.

The updated Soil and Agricultural Impact Assessment (Minesoils Appendix F) shows that the Glanmire Solar Farm project impacts on the following LCS classes:

- LSC class 3 = 40.6 ha
- LSC class 4 = 132.9 ha
- LSC class 5 = 12.6 ha

Class 3 soils are noted as having moderate limitations with regard to cropping and intensive grazing. Class 4 soils are noted as moderate to high and Class 5 soils high limitations to cropping and intensive grazing.

Therefore, in consideration of the verified land soil capability and the context of climate change (set out in the EIS and in Section 4.3.14 Climate change of this report), development of a solar farm to replace more intensive cultivation on the site can be argued to be a more sustainable land use.

4.5.2. Renewable energy contributions to grid

A. Immaterial, unreliable, inefficient power

Issue summary

Concern that 60MW power is immaterial to future NSW requirements.

Concern that contributions from solar farms are unreliable and inefficient.

Submission reference

SE-52152471, SE-52448710, SE-52637003, SE-52158209.

Glanmire Solar Farm Project response

At 60MW, the Project is not as large as many current solar farm SSD's in NSW but is both responsive to the Project site's context and financially viable in terms of its contribution to the grid. The Glanmire Solar Farm Project aligns with local and state regional renewable energy policies. Considered in terms of how many homes could be supplied, the Glanmire Solar Farm is expected to provide electricity for approximately 28,000 households. The resident population of Bathurst Regional Council area in 2021 was 43,567, living in 18,463 dwellings. Hence the Project could supply a significant amount of the region's energy consumption for its operational life.

As the grid transitions away from fossil fuel dominated generation, changes are necessary to address the generation profile of new generators. More storage is required, and the operation of the grid must change to reflect different time horizons; coal power for example steps up and down slowly whereas solar and wind are faster to come online and faster to drop off. This requires a more responsive grid. The more wind and solar projects are connected to the grid, the less difference weather conditions will make at any one plant. This is due to the effect of geographic diversity and the 'law of large numbers'.

Solar is highly efficient in terms of cost; in 2017 the Climate Energy Council reported that solar power was more affordable than new fossil fuel and nuclear power, with costs plummeting by almost 60% between 2012–2017 (Climate Council, 2016). As technology improves, the efficiency and yield of panels is improving in parallel.

B. Addresses urgent transition away from fossil fuels (Support)

Issue summary

Notes that the Project helps to achieve the urgent transition from fossil fuels to renewable energy.

Supports that solar farms are a clean source of energy in comparison to coal's environmental impacts including consideration of greenhouse gas emissions released.

Submission reference

SE-52506457, SE-52519217, SE-52840484.

Glanmire Solar Farm Project response

This Glanmire Solar Farm Project aims to be part of the necessary rapid transmission of the grid.

The EIS demonstrates it can be constructed and operated with low environmental impacts and that the natural resource base can be protected for alternative land uses after decommissioning. It has many advantages when compared to fossil fuel electricity generation.

4.5.3. Ethics and subsidies

A. Could be used to carbon offset other activities

Issue summary

Project may be used to carbon offset other activities.

Submission reference

SE-52127477.

Glanmire Solar Farm Project response

The Project would sell energy to the grid and would be paid in terms of how much it supplies. This is the sole basis for the Project. No carbon offsetting is relevant to the Project.

B. Panels made using forced labour

Issue summary

Panels made in China using forced labours and ethnic minorities.

Submission reference

SE-52637003, SE-52158209, SE-52633990.

Glanmire Solar Farm Project response

Elgin Energy condemns and opposes any abuse of human rights, including forced labour, anywhere in the global solar supply chain. We support applying the highest possible levels of transparency and sustainability throughout the value chain through our partnerships and our work as set out in our Environmental, Social and Governance Policy.

We support the development of an industry-led traceability protocol to ensure our supply chain is free of human rights abuses and as members of the Clean Energy Council we are committed to addressing and mitigating modern slavery risks across renewable energy operations and supply chains to ensure that the transition to renewable energy is a just transition. We will continue to work with the relevant trade associations and supply chain partners seeking transparency and traceability.

C. Detail how much subsidy is gained from government

Issue summary

Detail the description and dollar amount of each subsidy, and other benefit, both direct and indirect from public pursue in a timeline.

Submission reference

SE-52158209.

Glanmire Solar Farm Project response

No funding from the public purse has been received for this Project.

4.6. Beyond the scope

4.6.1. Dissatisfaction with agencies

Issue summary

Suggests that the Government should investigate the financial viability of the solar farm businesses to prevent profits going offshore.

States that no subsidy should be given to these developers.

Submission reference

SE-52839973, SE-52827457SE-52828713, SE-52827462, SE-52603207, SE-52397473, SE-52276223, SE-52159249, SE-52158209, SE-52826961, SE-52498712.

Glanmire Solar Farm Project response

These matters are beyond the scope and ability of the Applicant and the Glanmire Solar Farm impact assessment team to respond to. It is noted that no funding from the public purse has been received for this Project.

4.6.2. Procedural issues

Issue summary

Suggests that the SSD approval process is weighted towards the developers. There is no support for communities left to fund expert reports that can be used to contest Applicants claims. Concern over the timing; 2 years to work through several steps of the SSD application process, only 28 days to respond. This is difficult for those working full-time at their jobs and on their farms.

Concern over how common SSD Modifications are; the original scope may be increased, and the initial impacts expanded at the cost of farmers and rural communities.

Suggests the Agriculture Commissioner's Review into Renewable Energy and Agriculture should be applied to this Project (recommendations 7-10).

Submission reference

SE-52624507, SE-52504963, SE-52276223, SE-52415715.

Glanmire Solar Farm Project response

It is noted that several submissions, both from community members, organisation and from agencies were received after the 28 day period but that the Applicant has addressed these within this document.

The fast pace of technological change has been responsible for many modifications to SSD renewable projects. Modifications must be approved by the DPE and comply with the Environmental Planning and Assessment Act 1979, Section 4.55, which require them to be justified in terms of their additional impacts.

It is understood that the DPE are currently considering the recommendations of Agriculture Commissioner's Review in detail at this time and have not yet provided a formal response. If endorsed, they will have industry wide impacts that require careful consideration.

4.6.3. Regulations

Issue summary

Concern that there is not enough clarity or regulation of this new industry and companies within it.

Requests to legislate solar farms to operate on less productive land so as not to negatively impact on the regional economy.

Submission reference

SE-52827457, SE-52109210, SE-52448710.

Glanmire Solar Farm Project response

These matters are beyond the scope of the Applicant to respond to.

It is noted that DPE guidance on siting and assessment with regard to important agricultural land (Land Soil Capability classes 1-3) have been addressed. Refer to Section 4.3.1. The indicative layout verifies that permanent impacts on important agricultural land can be avoided.

4.6.4. Industry terms

Issue summary

Suggests that solar farms should be named solar factories, to better reflect their agenda.

Submission reference

SE-52827457, SE-52637003.

Glanmire Solar Farm Project response

This is beyond the scope of the Applicant to respond to. It is noted that in NSW, solar farm is a standard term used by DPE as well as other applicants.

5. Applicant's response to agency submissions

5.1.1. Crown Lands

No comments

5.1.2. Department of Primary Industries (DPE) Water Assessment

Issue – Water requirements confirmation

DPE Water recommends that the Applicant confirm there are no proposed water supply works for the Project and quantify the maximum operational take for the Project and demonstrate this can be acquired.

If new water supply works (e.g., bores or pumps) are proposed it is recommended their installation and operation be assessed as part of the SSD assessment process to avoid the need to obtain approvals separately under the Water Management Act 2000.
Insufficient information has been included to understand operational site water demands, this is required to be quantified and assessment of the availability of water to meet this demand is required.

Glanmire Solar Farm Project response

The Glanmire Solar Farm Project does not include any water supply works or the construction of new water supply infrastructure for the operation of the plant.

Operational water requirements for solar farms apply only for panel cleaning however this is subject to the average precipitation and average dust accumulation at the location.

It is expected that approximately 23,000 litre of water will be required per perform panel cleaning at Glanmire Solar Farm.

Issue – Best practice

Recommendation – Post Approval
That the Applicant ensure that works within waterfront land are in accordance with the Guidelines for Controlled Activities on Waterfront Land.

Glanmire Solar Farm Project response

The EIS already commits to this recommendation. No change required.

W1 Works in waterways:

- *Designed to minimise any hydraulic impact in accord with Laying Pipes and Cable in Watercourses on Waterfront Land (NSW DPI, 2012b).*

Crossings designed in accordance with Guidelines for Watercourse Crossings on Waterfront Land (NSW DPI, 2012a)

5.1.3. Department of Primary Industries (DPI) Agriculture

Issue - Environmental management plans

A Rehabilitation and Decommissioning/Closure Management Plan should include indicators
which may be used to guide the return of the land back to agricultural production along with the expected timeline for the rehabilitation program.

Glanmire Solar Farm Project response

The Project commits to rehabilitation of the site during decommissioning, with the Decommissioning Environmental Management Plan (DEMP) prepared and submitted to DPE for approval prior to the works. In the EIS, no timing is however provided for the duration of this phase and it is possible it may be undertaken progressively and indicators are not clearly set out.

The objective is to rehabilitate the site to a safe, stable and non-polluting state, equal to or better than its current land capability class and consistent with future land use requirements. In terms of indicators, commitment S7 (provided in full below) references base line soil testing which has been undertaken and has included for each soil horizon the pH, exchangeable sodium, electrical conductivity and the ratio of Calcium and Magnesium, all directly relevant to soil fertility (table reproduced below). A detailed justification of the site's land capability class with reference to best practice guidelines are also documented within the EIS, providing a clear goal for the rehabilitation actions.

Given this long Project life of around 40 years, detailed planning is considered best delayed to reflect the innovation and context more appropriate at that time.

S7 A Rehabilitation Plan would be prepared to ensure the array site is returned to at least or better than pre-solar farmland and soil capability during the decommissioning stage. The plan would include:

- *Identification and quantification of potential soil resources for rehabilitation.*
- *Optimisation and recovery of useable topsoil and subsoil during stripping operations.*
- *Management of soil reserves in stockpiles so as not to degrade the resource.*
- *Establishment of effective soil amelioration procedures to maximise the availability of soil reserve for future rehabilitation works.*
- *Returning the land to its pre-solar capability and improving the current state of the land.*
- *Development of completion criteria and monitoring reporting.*

The plan would be developed with reference to the base line soil testing and with input from an agronomist to ensure the site is left stabilised, under a cover crop or other suitable ground cover. The soil survey would be based on:

- *Australian Soil and Land Survey Handbook*
- *Guidelines for Surveying Soil and Land Resources*
- *The land and soil capability assessment scheme: second approximation*

Table 6-16 Soil chemical characteristics

Layer	pH (1:5 water)		ESP		ECe		Ca:Mg	
	Unit	Rating	%	Rating	dS/m	Rating	Ratio	Rating
A1	5.3	Strongly acidic	4.7	Non-sodic	0.6	Non-saline	3.4	Ca low
A2	5.9	Moderately acidic	8.1	Marginally sodic	0.2	Non-saline	3.3	Ca low
B21	7.2	Neutral	8.8	Marginally sodic	0.4	Non-saline	1.3	Ca low
B22	7.7	Mildly alkaline	17.2	Strongly sodic	0.7	Non-saline	0.7	Ca deficient

Issue – Decommissioning

All infrastructure needs to be removed to a minimum of 1000mm below the ground surface to enable the land to be returned to cropping.

Glanmire Solar Farm Project response

It is currently a standard commitment of NSW solar Projects to commit removal of all below ground infrastructure to a depth of *500mm* on final closure. This assists the reintroduction of agricultural land uses, and the potential for cropping should, this take place.

However, in this case, Elgin Energy will commit to removing infrastructure to a depth of 1000mm below ground level. This be updated in the Project's commitments. This action is a direct response to community concerns regarding agricultural productivity values as well as DPIs submission.

Issue - Biosecurity

A Biosecurity Management Plan for weed, pest and disease management needs to be prepared, reflecting some of the proposed mitigation measures presented on p222 of the EIS.

Glanmire Solar Farm Project response

Commitment B7 requires a Biosecurity management strategy be developed prior to construction.

Management plans can be required prior to development consent where uncertainty is present regarding the feasibility strategies to be adopted to meet their desired outcomes. In this case, the management of weeds, pests and diseases are anticipated to be undertaken through standard well understood protocols such as:

- Machinery and soil hygiene protocols to ensure pathogens are not brought to or taken from the site to other areas.
- Treatment of any weed infestations prior to vegetation clearing.

No specific pathogens, weeds or pest animals were identified for this site. The plan would be required to be submitted to DPE prior to works commencing.

Issue – Groundcover management

Regardless of agricultural use ground cover is necessary to prevent soil erosion and dispersion.

It is suggested a condition being included requiring groundcover to be maintained at a minimum of 70% to prevent soil erosion. Useful resources in relation to this requirement are:

Meat and Livestock guide 2.02 (https://mbfp.mla.com.au/pasture-growth/tool-22-assessing-groundcover/) and the Soil Knowledge Network Inc (https://www.nswskn.com/Solar%20farms/ and https://www.nswskn.com/groundcover/).

Glanmire Solar Farm Project response

Commitment S3 requires a Groundcover Management Plan to manage soil cover in construction and operation. This is to ensure that soil erosion and weed ingress are avoided and a perennial vegetation cover is retained. If managed livestock grazing proves effective, this may be used as part of the plan however, the primary objective of the plan is to protect soil resources. The existing commitment does specific 70% ground cover as a trigger for action, satisfying the Department's requests. It is provided in full below.

> *S3 A Groundcover Management Plan would be developed in consultation with an agronomist and to ensure final land use includes perennial grass cover establishment across the site as soon as practicable after construction and maintained throughout the operation phase. The plan would cover:*
>
> - *Soil handling, restoration and preparation requirements.*
> - *Plant Species election.*
> - *Soil preparation.*
> - *Establishment techniques.*
> - *Maintenance and monitoring requirements.*
> - *Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements – i.e. A target of 70% live grass cover would apply to protect soils, landscape function and water quality. Additional measures would be implemented where practical when live grass cover falls below 70%. Grass cover would be monitored on a fortnightly basis using an accepted methodology.*
> - *Contingency measures to respond to declining soil or groundcover condition. I.e., any grazing stock would be removed from the site when cover falls below the target of 70% live ground cover.*
> - *Identification of baseline conditions for rehabilitation following decommissioning.*
> - *Preserve the native composition as much as possible.*

Issue – Operational agriculture

A vague indication is that there may be an agricultural land use during the Project's operational life. However, there are no details on the reinstatement of vegetation post construction for this land use or how the site will be managed because of seasonal conditions etc. Stocking rates will also need to be monitored if a land sharing arrangement with livestock is arranged.

Glanmire Solar Farm Project response

While some agricultural activities may remain compatible with the operational stage of the solar farm, the primary objectives of the Glanmire solar farm Project are to maximise the solar yield of the Project in operations while ensuring no loss of agricultural land capability once the solar farm is decommissioned. Therefore, it is acknowledged that there is some uncertainty in relation to the level of agricultural production that will be compatible in operation.

The operational solar farm may continue to have some grazing production. In operation, the Project commits to maintain groundcover in and around the solar array areas, primarily to protect soil and water resources. This is expected to allow continued grazing but at a highly monitored level, to ensure that grazing pressure does not impact on maintaining stable ground cover vegetation.

As set out above, the Project has committed to ground cover management parameters to ensure grazing does not compromise soil and water outcomes.

Issue – Agricultural productivity

The gross value of agricultural production and gross margins should be updated to reflect the ABS 2020-2021 data1 to properly assess the economic impact of the loss of this agricultural land.
Further information on the agricultural productivity of the site could be obtained from local producers.

Glanmire Solar Farm Project response

The updated Soil and Agricultural Impact Assessment (Minesoils Appendix F) was undertaken to improve the survey effort and analysis of soil productivity that supported the EIS. It is based on satellite imagery, site observation, soil and land capability, and anecdotal evidence provided by the landowner and previous managers.

The updated assessment sources the latest agricultural census year of 2020 – 2021, finding there were 266 livestock grazing businesses and 94 cropping enterprise businesses in the LGA (ABS 2022a). The gross value of agricultural enterprises within the Bathurst Regional Council LGA for 2020-2021 is $72 million (ABS 2022b). Livestock for slaughter accounts for 52% of the total gross value of agriculture for the LGA. Other key enterprises are cropping and livestock products. For livestock slaughtered, cattle and calves make up 55% of the gross value with sheep and lambs making up 44%. Within the category of cropping, vegetables and hay are the dominant enterprises, collectively contributing more than two thirds of crop value (ABS, 2022b). For livestock products wool contributes 90% of the gross value (ABS, 2022b). More detail is provided in Appendix F.

The assessment found that the temporary impact of the Project on productivity of agricultural land based on the change in land use for the duration of the Project is up to $116,259 per year. This is an updated and higher value conservative estimate compared to those provided previously by SLR (2022) and Tramain Ivey Advisory (2021); refer to the tables below.

Due to the minimal disturbance to the landform, following the life of the Project, 179 ha of land removed from agriculture will be returned to agricultural use, with no reductions in land and soil capability. Agricultural enterprises can then re-commence at an equivalent agricultural productivity. The permanent impact of the Project on productivity of agricultural land based on the removal of the remaining 0.5ha following the Project is up to $326 per year. The permanent reduction of $326 per year is considered negligible impact in the context of the agricultural industry gross value of the Bathurst Regional Council LGA as outlined in Section 2.4.2 (0.0005%).

Table 5-1 Estimated agricultural productivity the study area

Assessment	Enterprise	Gross Margin ($/year)
SLR (2022)	Merino Ewes (20 micron) – Terminal Rams @ 16DSE/ha	105,282
Tramain Ivey Advisory (2021)	Mixed crop and livestock farming system (@ 13DSE/ha Merino breeding ewes over 66% or arable area and crop sequence of canola (winter type – grazing and grain), wheat (winter type – grazing and grain), and wheat or barley (spring type) over 33% of arable area.	102,050
This assessment	Merino Ewes (20 micron) – Merino rams (including fodder) @ 16DSE/ha	116,259

Table 5-2 Comparative estimated agricultural productivity the study area

Enterprise	Estimated Gross Margin ($/DSE/year)	DSE/Ha	Arable Land (ha)	Gross Margin ($/year)
Merino Ewes (20 micron) – Maternal rams (including fodder)	40.48	16	179.5	116,259
Merino Ewes (20 micron) – Merino rams (including fodder)	39.70	16	179.5	114,018
Merino Ewes (20 micron) – 25% Terminal rams (including fodder)	35.21	16	179.5	101,123

5.1.4. NSW Fire and Rescue

Issue – Engagement

FRNSW provided an email response on 23 June 2022 with links to information regarding Emergency Response Planning, Emergency Access, and Fire Safety Studies though these are not referenced in the EIS or PHA.

Glanmire Solar Farm Project response

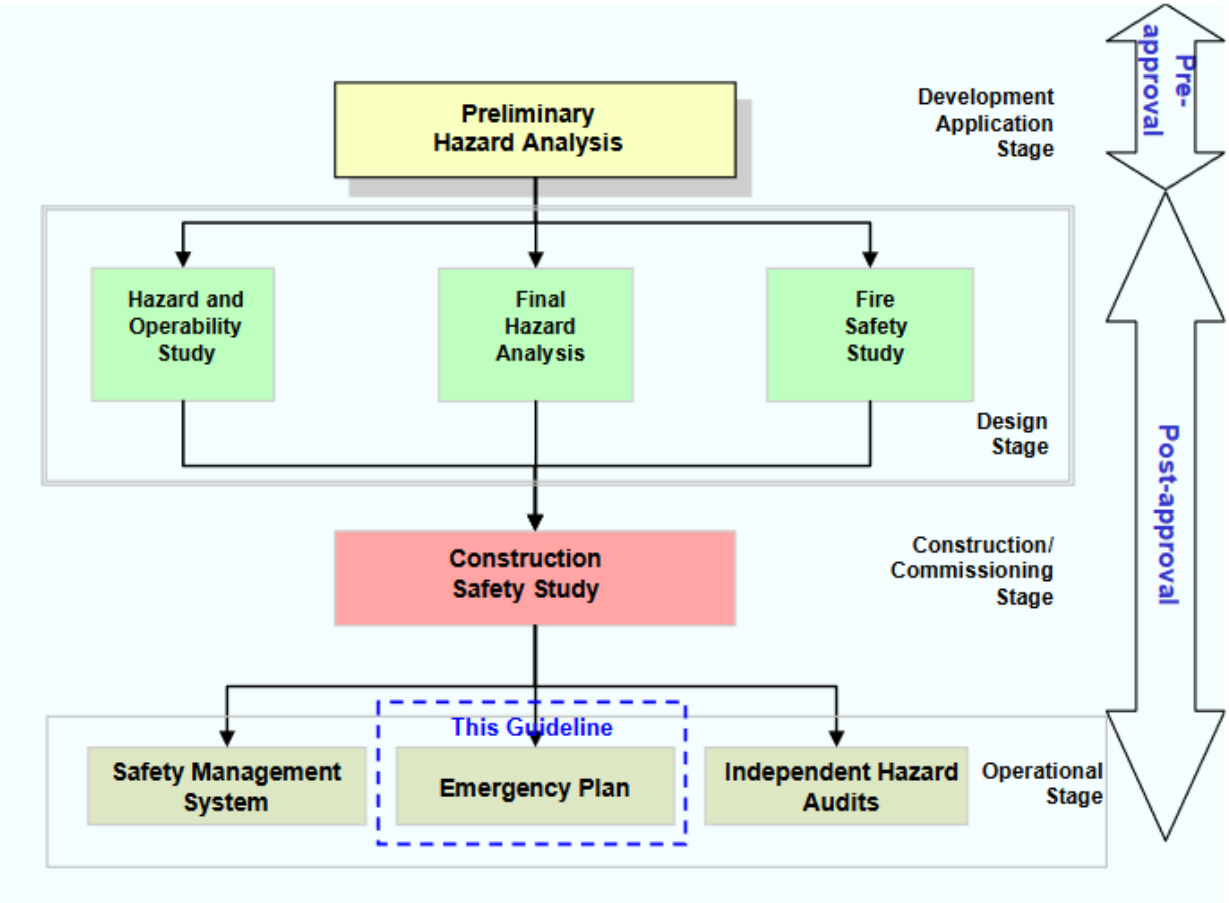
The email provided to NGH by FRNSW in June 2022 (provided in full in Appendix C.2) identified the following key guidance material:

- ***HIPAP No. 1 - Industry Emergency Planning Guidelines***
- ***Emergency services information package and tactical fire plans***
- ***Access for fire brigade vehicles and firefighters***.

While the Preliminary Hazard Assessment (PHA) undertaken for the Project did not identify any major offsite consequences or societal risk, management recommendations which form Project commitments include development and implementation of site-specific Bushfire Emergency Management and Operations Plan, Fire Management Plan, Emergency Response Plan and Fire Safety Plan. Furthermore, an objective arising from consultation activities also requires liaison to ensure fire truck access is considered in the design, share

information on how to manage fires in the solar farm and ensure the Project activities abide by safety and regulatory requirements.

At this stage the planning commitments are high level. The detail would be developed, pending Project approval, in line with the final selection of infrastructure components and contractors via a competitive tender process. The flow chart below acknowledges this chronology, extracted from HIPAP 1; The Hazards-related assessment process. All required management plans would be submitted to DPE prior to commencement and therefore the Project can accommodate the agency's provisions.



Source: Hazardous Industry Planning Advisory, Paper No 1 Emergency Planning NSW Planning Jan 2011

Issue – Emergency planning

It has been the experience of FRNSW that renewables facilities with large scale Battery Energy Storage Systems (BESS) pose special problems of firefighting and special hazards exist that may require additional fire safety and management measures. Due to these unique challenges FRNSW make the following recommendations:

That a comprehensive Fire Safety Study (FSS) is developed. The FSS is to be developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper (HIPAP) No.21 and is to meet the operational requirements of FRNSW.

1. That the development of the FSS consider the operational capability of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety independence. The FSS should consider worst-case fire scenarios including a full BESS unit fire and demonstrate no fire propagation within the facility.

2. That the FSS be submitted, reviewed, and meet the operational requirements of FRNSW prior to any further submission being made to FRNSW; this includes: an Initial Fire Safety Report (IFSR) and / or Performance-Based Design Brief / Fire Engineering Brief Questionnaire (FEBQ).
3. That the development of a FSS be a condition of consent.
4. That a comprehensive Emergency Response Plan (ERP) is developed for the site in accordance with HIPAP No.12. The findings of the FSS should inform the development and content of the ERP.
5. That an Emergency Services Information Package (ESIP) be prepared in accordance with FRNSW fire safety guideline – Emergency services information package and tactical fire plans.
6. That an Emergency Responders Induction Package is developed for the site in consultation with, and to the satisfaction of FRNSW prior to commissioning of the site. The package should inform first responders of site-specific features and safety.

Glanmire Solar Farm Project response

All NSW Fire and Rescue recommendations have been adopted by the Project. These are primarily centred on the development of additional detailed plans to be finalised in consultation with NSW Fire and Rescue in the post-approval stage of the Project:

- Fire Safety Study developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper (HIPAP) No.21 and is to meet the operational requirements of FRNSW. It must consider the operational capability of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety independence. The FSS should consider worst-case fire scenarios including a full BESS unit fire and demonstrate no fire propagation within the facility. It is required to include an Initial Fire Safety Report (IFSR) and / or Performance-Based Design Brief / Fire Engineering Brief Questionnaire (FEBQ).
- A comprehensive Emergency Response Plan (ERP) is developed for the site in accordance with HIPAP No.12.
- An Emergency Services Information Package (ESIP) be prepared in accordance with FRNSW fire safety guideline – Emergency services information package and tactical fire plans.
- An Emergency Responders Induction Package is developed for the site in consultation with, and to the satisfaction of FRNSW prior to commissioning of the site.

5.1.5. DPI Fisheries

No Comments.

5.1.6. Transport for NSW (TfNSW)

Issue – Traffic generation matters

a) The SIDRA analysis provided within the Traffic Impact Assessment (TIA) prepared by Amber consulting is based on the Traffic Volume Viewer data from Station ID 6107. The SIDRA analysis and TIA is required to be revised to address the following:
    i. Identify the month in which the AM/PM peak(s) have been obtained from Traffic Volume Viewer (Station ID 6107).
    ii. Table 3: Expected Peak Hour Traffic Volumes During Construction identifies 7am and 6pm as the AM/PM peak. However, the TIA identifies that the construction hours are 7am and 6pm, the AM/PM peaks would therefore be 6–7am and 5–6pm.

iii. Clarify if Table 3: Expected Peak Hour Traffic Volumes During Construction expected volume column is the background traffic volume plus the traffic volumes during peak of construction for the Project.

iv. The AM/PM peak traffic volumes associated with the peak of the construction of the Project are required to be clearly identified within the TIA, to ensure an accurate assessment of the traffic impacts. The TIA presents five different variations for the peak of the construction traffic volumes for the Project (see below):

- Section 3.1.1 Construction (paragraph 1)- identifies the peak construction being four months equating to a maximum of 150 employees arriving between 6–7am and departing 5–6pm in accordance with the 7am–6pm construction hours.
- Section 3.1.1 Construction (paragraph 4)- identifies the peak construction traffic volumes identified by the applicant as 60 heavy vehicles and 17 light vehicle movements per day. The traffic volumes identified by the applicant are identified within Table 2: Traffic Generation During Peak Construction Periods.
- Section 3.1.1 Construction (paragraph 5)- identifies that "approximately 63 vehicle movements during the morning and evening peak hours during the peak construction period.
- Table 2: Traffic Generation During Peak Construction Periods identifies 50 light vehicles, 3 MRV/HRV, 10 AV/B-double vph during the peak hour.
- Table 3: Expected Peak Hour Traffic Volumes during construction identifies the existing and expected volume columns for 7am and 6pm (peak Project construction hours) with a total volume of 66vph.

v. Address whether the calculations of the AM/PM peaks for the peak of the construction are inclusive of the Over Size Over Mass (OSOM) movements.

b) Section 5- intersection treatments-queue length analysis and turn warrant assessment will require further analysis based on the clarification of the peak traffic volumes associated with the peak traffic volumes for the peak of the construction of the Project.

c) Section 5-intersection treatments- turn warrant assessment should be revised to reflect the existing intersection turn treatments at the Great Western Highway/Brewongle Lane intersection. The existing intersection turn treatments consist of a CHR and an AUL.

Glanmire Solar Farm Project response

a) An updated SIDRA analysis has been prepared based on a recent turning movement count undertaken at the Great Western Highway/Brewongle Lane intersection.
The SIDRA analysis is summarised in Section 3.3 of the updated TIA report with detailed output provided in Appendix C of that report. It is appended to Appendix E of this Submissions Report.

i. The AM and PM peaks have been identified in the recent turning movement count which was undertaken in March 2023.

ii. Table 3 has been adjusted and the morning peak hour of 6-7am utilised. The revised table is shown in Section 3.2 of the updated TIA.

iii. Table 3 only included construction traffic as described in the report.

iv. The traffic volumes are discussed in detail in Section 3.1-3.3 of the report.
For clarity, Figure 7 shows the existing traffic volumes recorded in the March 2023 surveys plus the anticipated traffic volumes during the peak construction period, as described in Table 3 above.

v. Section 3.1.1 of the updated TIA states these volumes are exclusive of OSOM movements. It is anticipated that any transport to the site involving OSOM vehicles would be undertaken outside the peak hours.

b) A revised SIDRA analysis has been undertaken based on recent surveys and the current geometric configuration of the Great Western Highway/Brewongle Lane intersection. This is summarised in Section 3.3 of this report with detailed output provided in Appendix C.
c) Section 5 of the updated TIA has been updated to reflect the recent changes to the intersection.

Issue – Transmission line matters

d) Further SIDRA Analysis, queue length assessments and turn warrants assessments (in accordance with 3.25 of Part 6 of Austroads Guide to Traffic Management) are to be prepared for the key intersections with the classified road network proposed to be utilised for the transmission line work identified within the EIS.
e) The transmission line works identified within the EIS will be within the Great Western Highway-Kelso to Raglan Project area. The Applicant is to consult with the Project manager of this Project to identify any impacts to both Projects because of the transmission line work occurring within the Project area. The outcome of this discussion is required to be addressed within the RtS.
f) The transmission line works fall within the rail corridor of the Country Rail Network. TfNSW is the rail authority for this network and provides response to the legislative requirements in coordination with UGLR the rail infrastructure managers for the country rail network. TfNSW as the rail authority in consultation with UGLR the rail infrastructure manager request as a part of the RtS satisfactory evidence that they have permission granted by the rail authority to access the rail corridor.

Glanmire Solar Farm Project response

d) As indicated above, a revised SIDRA assessment and turn warrants assessment has been undertaken based in the current configuration of the intersection.
e) and
f) As the works are required to connect the Glanmire Solar Farm to the grid, they must also be assessed within the EIS, as the works are required as part of the State Significant Development.

This has been done at a high level, commensurate with the risk posed by the works and recognising that the final design and mitigation of these impacts will be a requirement for Essential Energy. It has been done in consideration of cumulative impacts specifically.

Since the submission of the EIS, the Applicant has sought further information from the Asset Service Provider who is designing both the 11kv and 66KV route upgrades.

The Asset Service Provider is Sustainable Energy Designs (SED), who state:

- The 66kV line requires approval from UGLR for an external works i.e., crossing the rail line & upgrade (i.e., if two pole structures running alongside the rail corridor need to be replaced).
- I have contacted UGLR, who are based in Orange.
- The application for external works takes approximately 6 - 8 weeks for approval as this is not new works but just an upgrade.
- I understand that they will require details of what is proposed e.g., conductor heights, pole heights & structure type suitable for rail crossing.
- I will submit to UGLR once I can add these details.

It is noted the details cannot be provided at this time.

SED has also contacted TfNSW (main roads) noting they will mainly be concerned with where the poles are located within the road alignment. Again, this will be subject to detailed design at a later stage.

Issue – Route clarification

g) Limited information is provided in relation to the heavy and light vehicle routes apart from the proposed access points to the site from the Great Western Highway. The TIA is required to be revised to address the proposed light and heavy vehicle routes to the Project area for the Solar Farm/ BESS and the light and heavy vehicle routes for the transmission line work.

Glanmire Solar Farm Project response

Section 5 of the updated TIA provides a route map along with a clear description. It also advises which roads are rated to accommodate B-Double vehicles.

Issue – Swept Path Assessment

h) The swept path assessment identifies the swept path for the B-Double heavy vehicles accessing the site from the Great Western Highway/Brewongle Lane intersection. The swept path assessment is required to be revised to:

- reflect the existing intersection treatments, which consist of a CHR/AUL.

Revise the swept path analysis to demonstrate that the design vehicle can undertake:

- The left turn into Brewongle Lane from the Great Western Highway within the existing AUL and not the through lane.
- The right turn onto Brewongle Lane from the Great Western Highway within the existing CHR.
- The left turn westbound from Brewongle Lane onto the Great Western Highway.

Glanmire Solar Farm Project response

Revised swept path assessments have been undertaken based on more recent aerial photography. These are attached in Appendix B of the updated TIA in Appendix E.

Relevant discussion regarding the configuration of the intersection has been updated in this revised report to reflect the recent upgrade works.

Issue – OSOM route study

i) The Glanmire Solar Farm includes a Battery Energy Storage System as a part of the Project. Battery Energy Storage Systems general involve the transportation of large, prefabricated components via OSOM vehicles that will be subject to specialised NHVR permits. Further information is required at the development application stage to assess the impacts and viability of the identified route for the transportation of the larger prefabricated components on the network. The following matters will be required to be addressed within the RtS:

- Identify the OSOM route to be utilised and any indicative pinch points within the network vertically, horizontally and laterally and the potential civil works required to accommodate the OSOM vehicles.
- The logistics assessment is to highlight each at- risk road structures that the haulage route crosses including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.
- Pull-over bay locations for the design vehicle or identification of any long haulage segments of the route where overtaking cannot be achieved.

- The design vehicle templates used with the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g., Autodesk Vehicle Tracking or Transoft AutoTURN).
- Provide the following measurements parameters of the OSOM components / materials to be moved:
    - Identify all the types of OSOM vehicles proposed to be used for the Project.
    - Overall combination length, width, height and mass,
    - Maximum component length width, height and mass,
    - Maximum load heights (clearance to overhead obstructions such as structures, utilities and vegetation) and widths,
    - Wheelbase dimensions,
    - Maximum trailer articulation angle(s),
    - Minimum overhang heights above the road surface, and
    - Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles (refer to Austroads Guide to Pavement Technology).
- Identify any mitigation measures required at pinch points, indicative timeframes for OSOM movements (i.e., night travel) and anticipated number of OSOM movements.

Glanmire Solar Farm Project response

The exact configuration of the OSOM vehicles are yet to be confirmed given the exact plant and equipment are to be tendered and then confirmed at a later stage of the Project.

Regarding OSOM routes to the site, these are considered best refined once the items above are confirmed. This includes consideration to bridge structures and culverts, pull over bays, and the need for selective vegetation pruning and/or temporary removal of street furniture. These considerations would form part of construction traffic management plans which would be considered as part of NHVR permits issued by the various road authorities along the entirety of the route.

Notwithstanding the above, swept path assessments have been undertaken using a “super load” OSOM vehicle configuration (based on a similar Project in NSW) for the Great Western Highway/Brewongle Lane intersection. These are attached for referent in Appendix B of the updated TIA.

Issue – RAVMAP

j) It is noted that Brewongle Lane is not identified as an approved B-Double route on RAVMAP and is therefore not approved for the access of the design vehicle being the for the design vehicle being the 25 B-Double. The RtS is required to address the suitability of Brewongle Lane and how and when approval will be obtained to allow for access of the design vehicle to the site.

Glanmire Solar Farm Project response

Measures are outlined in Section 4.2 to manage B- Doubles on this section of Brewongle Lane by way of widening to a minimum 6.5m. In addition, swept paths have been prepared of B-doubles at the access point to confirm satisfactory access.

It is noted that formal NHVR approvals are required for B-double use of the section of road from the relevant road authorities.

5.1.7. Heritage Council of NSW

No comments.

5.1.8. Heritage NSW – Aboriginal cultural heritage

No comments.

5.1.9. TransGrid

Issue - Connection to grid, Property advice

The Environmental Assessments team will need to carry out a due diligence review of the EIS to confirm that all necessary grid connection works are captured.
Property have no further comment and will provide the relevant Property advice to Lumea as part of the Project once the customer enters into the relevant connection agreements if not done so already.

Glanmire Solar Farm Project response

Contact was made with Michael Platt from Transgrid, to enquire if any additional actions were needed from Elgin Energy regarding their submission. He confirmed that they did not expect any further comments from us at this stage (personal communication 15 February 2023).

5.1.10. Biodiversity Conservation Division (BCD)

Issue – Area of impact

Clearly articulate the area of impact on biodiversity for the proposed development

> 1.1 Seek approval for all ancillary development required for the Project under the Part 4 approval pathway.
>
> 1.2 Update the area of impact for the Project to include all ancillary development in the BDAR.

Glanmire Solar Farm Project response

Regarding the scope of the BDAR, all impacts on biodiversity required for the Project are assessed in the BDAR *with the exception of the offsite electricity upgrade works.*

However, as the works are required to connect the Glanmire Solar Farm to the grid, it is understood that they must also be considered within the EIS. This has been done at a high level, commensurate with the risk posed. This includes consideration of cumulative impacts and recognises that the final design and mitigation of these impacts will be a requirement for Essential Energy.

Given the concern regarding how Part 4 and Part 5 of the Environmental Planning and Assessment Act interact in projects such as this, NGH considered precedent cases, specifically:

'Hoxton Park Residents Action Group Inc v Liverpool City Council [2010] NSWLES 242 (appealed); Hoxton Park Residents Action Group Inc v Liverpool City Council [2011] NSWCA 349'.

Consideration of the impacts of the transmission line augmentation works within the EIS is considered appropriate in this context. The scope of the assessment was commensurate with the extent to which the impacts are likely to flow from the solar farm development and the quantum of the likely impacts. The low level of risk stated by EE was verified by Elgin Energy's assessment team. The assessment also appropriately considered cumulative impacts. The risk-based approach is a continuing process; there is opportunity for further assessment under the future Part 5 assessment, commensurate with detailed design and thus, further quantification of likely impacts and their certainty.

At this time, details of the refurbishment of the existing overhead line and any flow on effects, such are re-routing the existing 11kV line, have not been finalised by Essential Energy and as such cannot be included in

the BDAR with any certainty. Including all options currently being evaluated would overestimate the impacts required for this Project. The works have however, been characterised by Essential Energy as likely to have a low level of impacts.

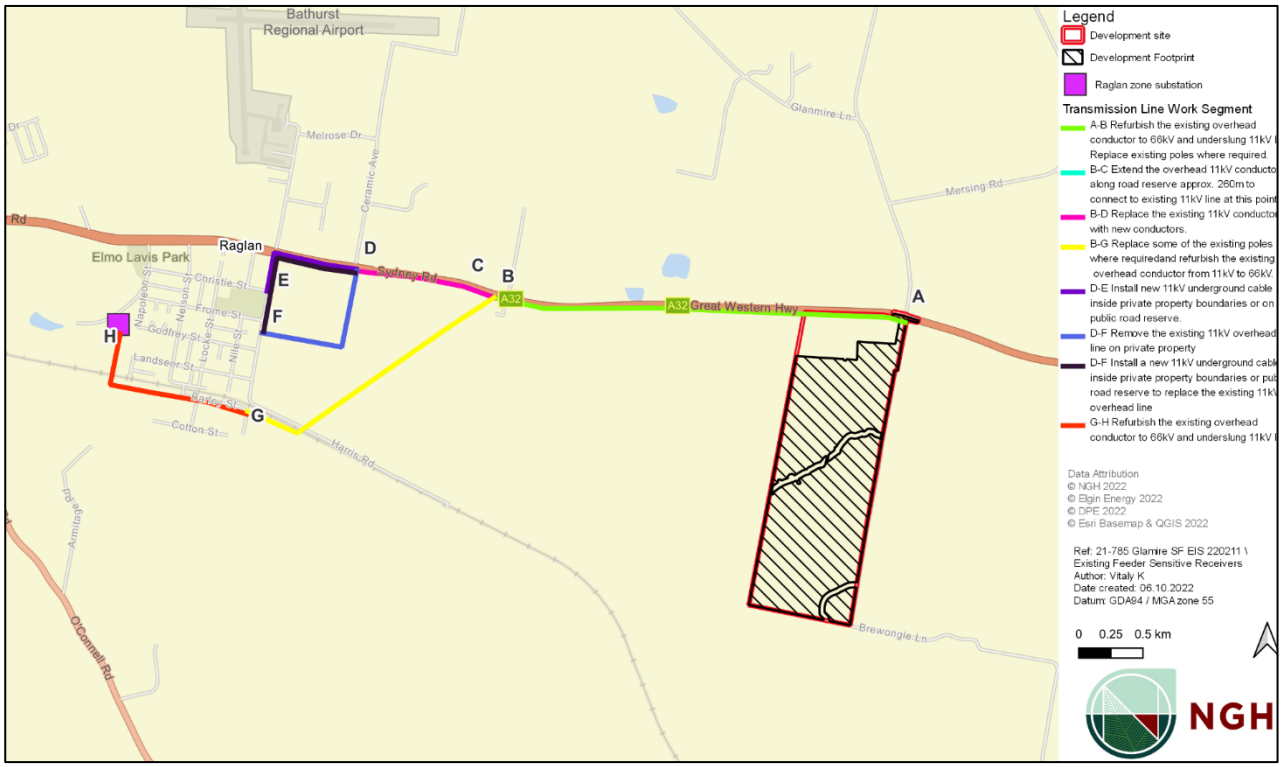
Elgin Energy undertook a high-level assessment of all possible augmentation options, as they were understood in late 2022. This was included as Appendix E of the EIS and summarised in Section 7.3 of the EIS (Cumulative impacts). The conclusion of this was that the potential impact to native vegetation, listed species and habitat values is likely to be low. In summary:

- The extent of disturbance associated with this Project is minor.
- It is unlikely native vegetation in reasonable condition is present in the existing easement.
- It is unlikely habitat values including tree hollows are present in the existing easement.
- It is unlikely many listed species would use/ rely on the habitat value within the existing easement.
- It is unlikely any species, population or community would be significantly impacted by the Project.

A heritage Due Diligence walk over of all options, carried out concurrent with EIS exhibition provides the most accurate indication of the quality of that may be habitat affected but also notes some areas of the site were not accessible due to locked gates (refer images below).

- Segment A-B - within the existing transmission line corridor and extends within private property and the road corridor; tall dense grass, some of the segment had been recently slashed.
- Segment B-C - vegetation comprised of dense and tall grasses and several non-native trees, including an Apple tree.
- Segment B-C - highly disturbed as the road corridor has been cut into the side of the slope, and existing underground services were observed.
- Segment B-D - highly disturbed from the construction of the highway and farming practices; tall and thick grass.
- Segment B-G - paddocks used for wheat cropping and grazing.
- Segment D-E - unable to be assessed. The remainder of the segment is comprised of the road verge and driveways of residential houses.
- Segment D-F - the paddock side contains a wheat crop and is comprised of an undulating plain. Vegetation within the road corridor is comprised of tall grasses and weeds, several young eucalypt trees and non-native trees. The road corridor side was heavily disturbed by the construction of the road and exiting services in the form of underground cables and overhead powerlines.
- Segment G-H - highly disturbed due to exiting services, the rail and road corridors.

Extract from Due Diligence Assessment AREA 2022 clockwise: Segments A-B, B-D, B-G,D-F – more intact examples selected from report.



Extract from EIS, Likely refurbishment options for the transmission line connecting to Raglan substation

Issue - Justification of Category 1 land BDAR updates

Further information is required to support Category 1 – Exempt Land within the Development Footprint
2.1 Justify land categorisation at the development site in accordance with the requirements as outlined in Appendix C, with specific reference to the criteria set out in s.60H of the LLS Act and supporting evidence.

i. Include incidentally recorded bat species in the biodiversity assessment. Update BAM-C to include Large-eared Pied Bat.
ii. Assess impacts to the Large-eared Pied Bat and Little Pied Bat in accordance with BAM 2020 Scattered tree module must be applied in accordance with BAM 2020
iii. Demonstrate that the groundcover composition between scattered trees meeting the criteria defined within the BAM 2020.
iv. Species polygons must include all areas of habitat
5.1 Map the species polygon for Southern myotis to include all areas of habitat within the Development Footprint.
v. BAM-C must be consistent with BDAR
6.1. Review BAM-C for consistency with BDAR (including field datasheets).

Glanmire Solar Farm Project response

Explanation expanded to include justification of Category 2 exclusion following *Local Land Services Act 2013* and Local Land Services Regulation 2014 definitions of Cat 2 and Cat 1 lands. Included additional aerial imagery showing more recent extensive cropping in the development site. Added veg plot data taken from two plots 20m x 20m in Cat 1 land as well as outputs from the Interim Grasslands and other Groundcover Assessment Method (IGGAM) calculator classifying the land as low conservation. Additional support of Cat 1 classification from LLS interpretation of DPE Landuse layer.

i. The BAM-C was updated to include Large-eared Pied Bat (Species credit species) AND Little Pied Bat (Ecosystem credit species) - both potentially recorded.
ii. Impacts were assessed for Large-eared Pied Bat and Little Pied Bat in accordance with the BAM.
iii. Based on advice from the BOS Help Desk Team the scattered tree module can no longer be applied where threatened species breeding habitat is associated with scattered trees. As two species with potential breeding habitat in scattered trees were assumed to occur (Southern Myotis and Superb Parrot) the scattered trees have been incorporated into Zone 1 vegetation and assessed under Part 4 & 5 of the BAM
iv. Species polygon for Southern mytois has been extended to align with recent changes in the species listed habitat constraints. Species polygon now includes impacted dams in the Development Footprint and all Zone 1 (PCT1330) vegetation. Similarly, the species polygon for Superb Parrot has been expanded to include all Zone 1 vegetation, where it previously only included the dripline of hollow-bearing trees in the Development Footprint.
v. BAM-C was updated where inconsistencies occurred for tree-size data and high threat weed percentages.

5.1.11. Rural Fire Service

Issue - Planning for Bush Fire Protection

The Project appears to be generally consistent with the aims and objectives of Planning for Bush Fire Protection 2019, however any development (as proposed) must comply with clause 8.3.5 (Wind and Solar Farms) of Planning for Bush Fire Protection 2019.

Glanmire Solar Farm Project response

Clause 8.3. is stated in full below. It includes seven specific provisions, which have been numbered by NGH to facilitate a clear response to each matter:

8.3.5 Wind and solar farms Wind and solar farms require special consideration and should be provided with adequate clearances to combustible vegetation as well as firefighting access and water. The following should be provided for wind and solar farms:

1. *a minimum 10m APZ for the structures and associated buildings/infrastructure; and*
2. *the APZ must be maintained to the standard of an IPA for the life of the development.*
3. *Infrastructure for the purposes of requiring APZ excludes road access to the site; and power or other services to the site and associated fencing.*
4. *Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies.*
5. *It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding bush.*
6. *A Bush Fire Emergency Management and Operations Plan should identify all relevant risks and mitigation measures associated with the construction and operation of the wind or solar farm. This should include:*
    a. *detailed measures to prevent or mitigate fires igniting;*
    b. *work that should not be carried out during total fire bans;*
    c. *availability of fire-suppression equipment, access and water;*
    d. *storage and maintenance of fuels and other flammable materials;*
    e. *notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and*
    f. *appropriate bush fire emergency management planning.*

It is important to be aware of operations that may be carried out on days of Total Fire Ban and any prohibited activities or exemptions that are notified by the Commissioner of the NSW RFS under the RF Act s.99.

5.1.12. Mining Exploration and Geoscience

No Comments.

5.1.13. Bathurst Regional Council

Issue – Alignment with regional and local land use plans

Some of the Objectives of the Central West and Orana Regional Plan (CWORP) may be taken out of context. For example, creating a value-add opportunity, where the Plan is actually talking about value-add opportunities specific to agriculture (e.g. on-farm processing, farm gate sales, small-scale manufacturing for agriculture, etc.) and not so much about potential alternate uses of rural land.
Overall the EIS has identified some important issues out of the Local Strategic Planning Statement (LSPS), including the following:
The LSPS has been adopted by Council and provides a framework for issues concerning the future development of the City and Region. These are outlined in the following Planning Priorities…

[NGH note; Only those where the Project is mentioned are cited below].

Glanmire Solar Farm Project response

Central West and Orana Regional Plan (CWORP)

The Project is considered generally consistent with the goals and objectives of the Central West and Orana Regional Plan (CWORP).

Part 1 of the Regional Plan identifies region-shaping investments that are planned for the next five years. This includes the Great Western Highway upgrade between Katoomba and Lithgow. The upgrade is envisaged to improve connections between Central West NSW and Western Sydney and potentially unlock development opportunities. The Regional Plan identifies a corridor comprising the growth centres of Lithgow, Bathurst, and Orange.

The proposed solar farm is in this identified planning corridor, approximately 10km east of Bathurst city centre. The infrastructure is proposed to be set back about 300m south of the Great Western Highway, beyond undulating landform. It is not envisaged to frustrate any potential future corridor planning as initially identified in the Regional Plan.

Objective 2 relates to the delivery of the Central-West Orana Renewable Energy Zone (REZ). Over $6 billion of investment over the next 5 years is planned in the REZ according to the Regional Plan. The Regional Plan also identifies significant time and investment is still to be completed to establish the REZ, including consulting, planning, assessment, procurement and construction.

The Large-Scale Solar Guideline recognises that delivery of renewables cannot be limited to only within REZs if clean energy targets are to be achieved. The NSW government has acknowledged that most solar Projects lie outside the REZs and will remain a crucial part of the net zero transition.

Part 2 of the Regional Plan aims to ensure the protection of the unique ecosystems of the region such as the Macquarie Marshes, Greater Blue Mountains World Heritage Area as well as inland rivers and biodiversity corridors. The proposed development will not impact high value areas, given the vegetation present on-site is highly disturbed exotic pastures, with most trees cleared and tree recruitment evident. Riparian buffers of 40m will be provided for two second Strahler order waterways, with the retention of several large native trees. Two cultural heritage sites were recorded and will be protected from impacts. The findings were supported by Traditional Owners who contributed to the survey methodology, survey and ACHA report.

Part 3 of the Regional Plan addresses the issue of continued growth in the region and the need for supporting infrastructure and housing. Objective 13 calls for the delivery of a range of housing options to meet demand, whilst Objective 16 specifically targets short-term housing for temporary workers. The EIS identifies about 150 workers would be required during the peak construction phase (4 months). Local workers would be prioritised to retain expenditure locally as well as avoid further pressure on the local housing market. However, if local resources are unavailable, non-local workers would be temporarily housed in Bathurst or the surrounding area. An accommodation and employment strategy will be developed to ensure sufficient accommodation for the construction workforce, including measures to avoid adverse impacts on tourism, vulnerable populations using temporary accommodation, local rental market and cumulative effects.

Part 4 of the Regional Plan relates to the region's traditional strengths in agriculture, manufacturing, and mining as well as emerging economic opportunities in health, education, and tourism. Objective 19 aims to protect the diverse agricultural activities in the region, whilst encouraging the transition to innovative agricultural processes.

Grazing of fodder crops for lamb and wool production on the subject land would cease during the solar farm's operation but groundcover management grazing is likely to be employed. In terms of permanent impacts only 0.5 ha of the site would be removed from agricultural use (or other future options); this being for the substation. Assuming the conservative DSE/ha of 16, the reduction in livestock being sold will be a minor impact at the scale of the CTLX and broader state, as this reduction is estimated to represents 0.89% of all

livestock sold at the Central Tablelands Livestock Exchange (CTLX) and 0.04% of sheep sold in NSW. The permanent reduction of $326 per year is considered negligible impact in the context of the agricultural industry gross value of the Bathurst Regional Council LGA as outlined in Section 2.4.2 (0.0005%). Refer updated Soil and Agricultural Impact Assessment, Appendix F. Permanent impacts on important agricultural land can be avoided and no Biophysical Strategic Agricultural Land (BSAL) would be impacted.

Vision Bathurst 2040: Bathurst Region Local Strategic Planning Statement (LSPS)

Two investigation areas for potential employment lands have been identified in the LSPS. Part of the investigation area was also identified in the Bathurst Region Urban Strategy 2007. However, as identified in the LSPS and noted by Council, detailed investigations have not commenced, and the proposed development is not within these areas.

LSPS Planning Priority 7 highlights the need to minimize incompatible land uses around Bathurst Airport. The council raised this matter in early consultation for the Project and accordingly, this was addressed in preparation of the EIS and accompanying assessments. NGH also consulted CASA and incorporated their advice in the assessment phase. The subject land is around 4km east of the airport and CASA confirmed the site is not located within the corridors used by aircraft on approach, the most critical flight phase. As a non-sensitive use, the proposed solar farm is considered generally compatible with the airport operations.

The council's submission raises comment that the height of on-site infrastructure is unclear. The EIS provides on-site infrastructure details, with the solar array not exceeding 3.5m, storage shed around 7m in height and the operation and maintenance buildings at approximately 4m high, subject to final design (Table 1-1 of the EIS). Council notes the refurbished transmission line poles will be restricted to 18m or less where required to protect and preserve the Obstacle Limitation Surface (OLS). Council also acknowledged the glare analysis for all airport runways demonstrated no glare risk to the Bathurst Airport.

Actions by Council associated with Planning Priority 12 Enhance environmentally sensitive land and biodiversity include improving scenic quality of the region by limiting urban and rural lifestyle development in areas of high biodiversity, hilltops, and ridges. However, the proposed development would not affect such areas and thus avoid scenic landscape impacts. A green edge between the urban and rural environment is also identified as an action and to this end, the proposed development will include perimeter and riparian landscape buffers.

The improvement of the city's gateways through built form control, roadside screening and buffers established to screen urban growth is also identified as an LSPS action. Council raises comment that the photomontages, particularly Figure 6-9 of the EIS (copied below in Figure 5-1), indicate the solar farm could be a prominent feature within the landscape and the gateway to the city during the short to medium term, as the vegetation is established and matures onsite. However, the proposed development will not be visible to road users approaching Bathurst from the east on the Great Western Highway. It will only be visible to road users leaving Bathurst, about 10km from the city centre. Without mitigation, the impact on these road users was assessed as very low and will be reduced to no visual impact within 2–5 years when shrubs reach 3m and trees 5m.

Figure 5-1 *Visual impact without mitigation on road users leaving Bathurst.*

Issue – Airport protection area

Airport Protection Area – The EIS states that all power poles within the offsite transmission route will be kept below a height of 18 metres to avoid the OLS. The proposed height of the onsite infrastructure (e.g. substation and battery compound, fencing, etc.) is unclear. The EIS also states that a Glare Gauge analysis of the north south and east west runways at the airport was undertaken and demonstrated there is no glare risk to the Bathurst Airport.

Glanmire Solar Farm Project response

The final selection of components will be made post approval through a competitive tender process and so are not known specifically at this time. The EIS stated anticipated heights of infrastructure components are as follows:

- Panels, height, limited to a maximum of 3.5m above ground level. Inverter/transformer station is approximately 3.0m high.
- Operations and maintenance building, maximum 4m
- Onsite substation and switch room, maximum height of 5.5m with the only taller structures being the lightning arrestor poles, which are slimline poles with a maximum height of approximately 15m.
- Fencing, approximately 2m high
- Battery, not provided.

These are all less than the 18m restriction noted for OLS.

The Bathurst Regional Airport is located about 4.5km to the northwest of the Project site. Aircraft approach paths are assessed for glint and glare risk because this is considered to be the most critical stage of the flight. The Glare Gauge Solar Glare Analysis Tool used in the visual assessment includes a 2-mile approach

tool for the purpose of assessing aircraft. As noted in the EIS, the model used shows a scenario which exaggerates the potential for glare. The software is therefore likely to predict solar reflections over a larger area and for a greater length of time than would be experienced in reality. In this way conservatism is built into the approach. The analysis concluded that there is no glare risk to the Bathurst Airport.

Issue – Gateway to the city

Photomontages of the site suggest that the solar farm could be a prominent feature within the landscape and the gateway to the city during the short to medium term, as the vegetation is established and matures onsite.

Glanmire Solar Farm Project response

The impacts on the gateway to the city has been assessed in the LVIA with the assessment of *Viewpoint 2, View west from the Great Western Highway* and *Viewpoint 3: View east from the Great Western Highway*.

The visual impact assessment has confirmed that the Project would not be a prominent feature within the landscape and that there would not be a significant visual impact on views east or westbound from the Great Western Highway.

This assessment illustrates the view for eastbound traffic with a photomontage showing the Project on day one. Refer to Figure 6-9, and Attachment B, Figure B7.

In this view, the Project would not be a prominent visual feature as it is well set back from the Highway, there is intervening landform and vegetation which limits the visibility of the infrastructure, and the solar infrastructure has a low profile which follows the undulating landform. As such, the Project comprises a very small portion of the wider view.

The assessment of visual magnitude has been guided by the method and thresholds outlined in the DPE Technical Supplement (2022). The visual prominence of the Project is indicated by level of magnitude identified as the magnitude tool provided in the DPE Technical Supplement has been developed specifically for the scale and character of large-scale solar infrastructure by the NSW DPE. We understand the guideline is intended to provide a clear and objective threshold for visual magnitude levels that is to be applied consistently to Large-Scale Solar Farm infrastructure Projects across NSW.

In *Viewpoint 3: View east from the Great Western Highway,* the number of grid cells occupied (i.e., 2) is well within the threshold for a very low magnitude, which is 1–6 occupied cells.

Assuming favourable conditions, the screening vegetation provided along the north and western boundaries of the Project area are expected to achieve several metres of growth within the first 2-3 years. So that, the Project would be well absorbed, and even less prominent in the view within a short period of time.

Issue – Energy transition context

The Project is consistent with and will contribute to the Federal Government legislated emissions reduction targets, NSW Net Zero Plan and Draft Central West and Orana Regional Strategy by 130,000t CO2e per annum.

Geographic location and proximity to HV transmission will lower transmission and distribution loss factors for generation from the proposed plant.

BESS will increase both generation and demand side capacity. Utility scale BESS is recognised as an important part of NSW's transition away from coal-fired energy generation towards renewable energy.

Glanmire Solar Farm Project response

Noted. The Project is well aligned with federal and state policies to transition away from coal-fired energy generation towards renewable energy and network benefits including storage and transmission loss factor reductions.

Issue – On site buildings

The Project includes construction of a storage shed 14m x 12m x 7m and a site office and amenities building 18m x 4m x 4m. The location of the site office and amenity design are likely dictated by site operation. No details are provided on the proposed shed.

Dependent on final locations of infrastructure, consideration will need to be given to views to and from the "Woodside Inn" and designs should be appropriate to reflect that consideration.

Glanmire Solar Farm Project response

The onsite buildings (site office, storage shed and amenities building) would be located within the area identified for the substation and BESS. This area is about 600 metres from the 'Woodside Inn'. Due to the existing intervening vegetation and landform, there is unlikely to be a view from this location that would result in an adverse visual impact of any significance.

The proposed vegetation screening along the northern boundary of the site would also provide screening of views towards this area of the site. The historic heritage assessment within the EIS concludes:

The vegetation (existing and proposed) will screen the view of the solar array from the road and ensure the environmental context of Woodside Inn building remains intact. This will ensure no loss of heritage value to the Woodside Inn building.

Issue – Fencing

The potential impacts of a 2m high security fence on the perimeter needs consideration as it has the potential to impact upon views to and from the site. Final designs, colours and materials are to be considered. Visual impact from 2m high fence around the site perimeter has not been discussed, noting fencing is to be installed behind landscaping which may soften visual impact although delays in establishment of vegetation will lead to short to medium term impacts.

Glanmire Solar Farm Project response

As noted by Council, the site boundary fencing would be located behind landscaping that would screen the fencing over time. Assuming favourable conditions, the establishment of the vegetation would occur in the short term and is expected to provide several metres of growth within the first 2–3 years.

There are no sensitive receivers located within the site and therefore views from within the site do not require visual impact assessment.

Regarding views from surrounding areas, the security fencing proposed for the Project has been considered in the landscape character and visual impact assessment. The security fencing is included in the 3D model used to prepare the photomontages, as seen in for example in Figure 5-2. These photomontages have supported the assessment of visual impact.

It is not recommended that the site perimeter fencing be treated with a particular colour, such as powder coated posts and coated wire in black or the like. Such finishes have a more urban character and may increase the visual impact depending upon the season and within what context the fence is viewed. The prevailing character of fencing in the locality is timber and galvanised steel with post and wire and other galvanised wire fencing seen across the surrounding rural areas (refer to photographs provided in below). A galvanised finish will develop a patina over time and be less visible as the finish gradually dulls and the colour darkens slightly.

A treatment such as the use of grey or green shade cloth attached to the fencing could be considered as a short-term mitigation measure for the views along Brewongle Lane where the fencing would be in closer proximity. This would obstruct the view to solar infrastructure, however, may have a visual effect in itself, not being something typically seen within the rural landscape.

Figure 5-2 *View south along Brewongle Lane, photomontage (day 1, no planting shown) (Source: Iris)*

Issue – Community benefit scheme

The EIS nominates "eight local initiatives" for "exploration and clarification should the Project be approved". Whilst Council supports the concept of the Community Benefit Scheme it has not adopted these "local initiatives" for funding under any Scheme. Council notes that the initiatives involve 3rd parties. Further discussion will be required with the Applicant as to Council's priorities.

Glanmire Solar Farm Project response

The eight initiatives identified in the EIS were a result of extensive community consultation and community feedback during the EIS engagement period.

We acknowledge that Council will have further discussion for Community Benefit Sharing initiatives and the Applicant will work with Council to establish a VPA with initiatives that will be in the best interest of the Bathurst community.

Issue – Visual impact from the Great Western Highway

The view from the Great Western Highway from the point of descent from Browns Hill and enter the Bathurst Plains represent a significant and highly valued view. It provides a "sense of arrival" to Bathurst and the Central West beyond. The current views of the land are consistent with the "treeless landscapes" that typifies the Bathurst Plains and the entrance to the city from the east. Those views across the landscapes generally extend along both sides of the Great Western Highway from Browns Hill to Raglan and contribute to the sense of arrival.

The potential visual impacts include not only the solar panels themselves but also the ancillary aspects of the Project including the enclosing security fencing (2m high plus barbed wire topping), and infrastructure such as the BESS and substations. Council would suggest that identifying the area as "low scenic quality" (albeit

that may be consistent with the Technical Supplement – Landscape and Visual Assessment criteria) would be disputed by many. Council acknowledges that for the purposes of assessment that a "moderate landscape sensitivity" has been used. Council would question the conclusion that "Overall, the size and scale of the change is low, and the relative geographic area of the development site is small. The duration of the Project is medium term, and the change is reversable" (Visual Assessment p24).

Council would suggest that the magnitude of change would most appropriately be within the moderate range given the area impacted (158 ha), the infrastructure is not "typical" of the rural locality and impacts are not short term (40 years). Having regard to the adopted scenic quality of "moderate" and the magnitude of change (arguably moderate) the overall landscape character impact may be considered as "moderate" as opposed to "low landscape character impact".

Glanmire Solar Farm Project response

As previously noted, the visual impact assessment identified no visual impact on views west bound from the Great Western Highway, including from the point of descent from Browns Hill.

In relation to the assessment of landscape character, the DPE Technical Supplement indicates that the following be considered:

- *'size and scale including:*
  - *–the extent of existing landscape elements that may be lost and the contribution of that element to the character of the landscape*
  - *–the extent to which the Project becomes a minor or major element in the landscape and its dominance in the visual catchment*
  - *–the extent to which the Project changes the key characteristics of the landscape, which are critical to its distinctive character.*
- *geographical area – the area of the landscape over which the effects will be experienced, having regard to the nature and scale of the Project's effects. This could vary from the immediate setting of the site to larger scales where the Project may influence several landscape characters zones.*
- *duration and reversibility of the effects on the landscape.'* (Page 10, DPE 2022).

The assessment in the LVIA is consistent with the DPE Technical Supplement and remains the opinion of the visual assessment expert.

The extent of the landscape elements that would be lost is relatively small and the site area is compact, not extending across multiple fields or visual catchments. The Project has limited visibility from surrounding areas and would not become a major element in the landscape nor dominant in the visual catchment. This opinion is supported by the findings of the visual impact assessment.

There would not be any valued landscape elements lost beyond an open field. The extensive landscaped areas that would be provided would improve the character of the landscape, improving the character of the creek lines and road corridors within and alongside the site.

For there to be a moderate magnitude of change, there would need to be a greater extent of change, with impacts being visible from a wider area and being more visually prominent.

The Project would be of medium term and reversible.

Issue – Vegetation screening

Mitigation measures for surrounding dwellings are proposed to be achieved predominantly by means of vegetation screening to the external boundaries.
As noted in the EIS, planting is to occur after other construction has been completed (p69). The EIS indicates that medium term (2–5 years) shrubs are estimated at 3m and trees at 5m. Long term mitigation (shrubs to

6m and trees to 10–20m) is estimated at 10–15 years. (EIS p103). The effectiveness of the landscape plan is limited in the short to medium term. As the impact is to occur in the short term it follows that the impact should be mitigated in the short term. Having regard to these factors that following should be further considered [see separate points below]:

i. Vegetation should be established at a minimum during the construction process rather than be deferred until after construction has been completed.
ii. Opportunity to increase extent of planting along the southern section of property (currently limited to 10m native screen over part only) to mitigate the properties to the south. This could be achieved by increasing plantings in the area identified as "box woodland allowing pasture".
iii. Indicative landscape details provide "height at maturity" with limited info on heights at time of planting. Plans indicate generally 50mm x 50mm tubestock or similar. Tubestock plantings alone are likely to take an extended period to establish.
iv. Establishment of landscape as the primary means of mitigation may be subject to climatic influences. These may impact or delay planting or establishment.

Glanmire Solar Farm Project response

The Large-Scale Solar Energy Guideline, Technical Supplement (2022) (DPE Technical Supplement) includes 'Visual performance objectives' at Table 10, page 29. These objectives outline the mitigation requirements for each visual impact level.

As most of the visual impacts identified for this Project are low and very low, there is no mitigation required for these views. This applies to views from all surrounding private dwellings and most public vantage points.

There is one potential moderate visual impact identified in the visual impact assessment. This is the view from Brewongle Lane. This potential moderate visual impact would be mitigated by the proposed planting along the Lane so that there would be a low visual impact in the short term.

The DPE Technical supplement indicates that appropriate mitigation options include vegetation screening or Project landscaping to reduce the level of impact. This mitigation response is considered to be proportionate to the scale of the impact and would be effective in reducing the visibility and visual impact of the solar farm in the short-term.

The Project has also provided landscape treatments to further improve the outcomes of the visual impact assessment on views from other areas surrounding the site.

The LVIA provides indicative durations and vegetation heights for the purposes of describing the changes in visibility shown on the photomontages. The LVIA adopted the following scenarios … 'short term (shrubs modelled at 3 metres and trees at 5 metres), about 2–5 years)' and … 'long term (shrubs about 6 metres and trees ranging from 10–20 metres, about 10–15 years).' No medium-term height scenario was provided. The assessment of visual impacts with mitigation assumed the short-term planting scenario.

i. The Registered Landscape Architects (IRIS Pty Ltd), who prepared the visual impact assessment and Landscape Plans, have advised that improved long-term outcomes would be achieved by allowing for the scheduling of landscape works for an appropriate time following the major construction works on the site.

   This is because:

   - Planting should be undertaken during the appropriate season and when there are favourable conditions for the successful establishment of the planting. Planting out of season and during unfavourable conditions will result in poor long-term outcomes and a less sustainable planting.
   - In our experience, the installation of planting before and or during other construction activity often results in damage to planted areas by contractors working near to or around the landscape works. While areas can be fenced off, this is difficult for linear planting areas, and

areas within the site, where access cannot be guaranteed and there is a large area of interface with other contractors and trades. Early establishment of the vegetation is not considered necessary on this Project considering the relatively low visual impacts.
- Improved outcomes can be achieved during the establishment and monitoring periods where the maintenance works can occur unhindered. Any remedial works are not compromised by limited access and impacts from works being undertaken in adjoining areas.

The works can be completed, and maintenance undertaken across the entire site rather than in a piecemeal way, with different areas of the landscape works at different stages of completion and subject to different maintenance regimes.

ii. We have considered the effect of increasing the extent of planting along the southern section of the property, currently shown as 10 metres of native screening, in part, and otherwise shown as box woodland allowing pasture. This opportunity can be considered during detailed design; however, we consider that:
- A 10-metre wide area of native screening would provide effective screening, that would not be substantially enhanced by increasing the width of the planted area. The area where this planting is, is not highly visible from surrounding areas, and dwellings.
- There would be trees provided in the south eastern corner of the site, and trees and shrubs planted along the creek which extends north to northeast. The plant densities proposed are appropriate for the native woodland types as advised by the ecologist. Together these trees and shrubs would provide some screening of the solar farm infrastructure, while also allowing for continued grazing.

The views from the dwellings to the south have a very low visual impact and further screening would not be necessary according to the DPE Technical supplement.

iii. The height of tubestock is not an important or relevant factor when ensuring the health of a tube grown plant. There is great variation across plant species and among individual specimens as plants grown in tube grow rapidly and will continue to do so once planted. As height it is not a useful indicator of plant health and root establishment it is not provided.

Generally, tubestock plantings will establish more quickly and achieve healthier plants than larger planting stock in regional locations. The smaller plant stock does not suffer transplantation shock as greatly as larger nursery grown stock and will acclimatise to the local conditions more quickly. Using smaller pot sizes improves the long-term health of plants, which will adapt to local soil and microclimatic conditions more quickly and will be less reliant on regular watering.

Tubestock will reach the same height as larger pot sizes in a short period of time, and as they will be more vigorous and healthier, with the potential to provide a denser and more effective visual screen in both the short and long term.

iv. As previously noted, it is agreed that being a natural system, planting is subject to climatic influences. To address this, the landscape plans developed for the Project propose locally native species, that would be planted at the appropriate time as tube stock, and subject to a 24 month establishment and maintenance period.

The landscape is not the primary means of mitigation, apart from along Brewongle Lane, the low and very low visual impacts have been achieved due to:
- the substantial setbacks which have been incorporated into the layout of the Project, including a setback from the Great Western Highway to the north of the site (of over 300 metres), setbacks along the side boundaries, and a setback from the southern boundary and south eastern corner of the site.
- the selection of single portrait panel array, reducing the overall height of the solar arrays; and

The location of the substation, and battery infrastructure has also been located in a lower area of the site and set back from neighbouring dwellings.

Issue – Cultural heritage

The EIS should recommend the need for a Cultural Heritage Management Plan to manage the 2 new sites found, which would include the relocation of the quartz flake.

Glanmire Solar Farm Project response

This recommendation now forms a Project commitment:

AH1.1 A cultural heritage management plan must be prepared for the protection and management of 2 sites identified onsite. This should be prepared prior to construction and will be relevant for all phases of the Project.

Issue – Impacts on agriculture

Council has noted that the impact of the development on current and future operations on the property and the locality has been consistently raised by members of the community.

Council notes that the assessment concludes that the land is assessed as Land and Soil Capability Classes 4 & 5 i.e. moderate to moderate – low capability land. Further, the assessment concludes that the property has no verified Biophysical Strategic Land (BSAL) land on site due to poor drainage and moderately low fertility. The BSAL & LSC have been peer reviewed by Minesoils. It is likely that the land capability of the land will continue to be disputed by residents within the locality.

Whilst the EIS notes that the land may continue to be used for agricultural pursuit (principally grazing) that use (as it currently does now) is dependent upon landowner decisions which are beyond the scope of the EIS. Council does note that income generated from grazing would be “significantly less then pre-development levels” (p28). The issue of the insurability of surrounding properties should the development be approved has consistently been raised by residents in the locality.

It is likely that the concerns raised by surrounding residents in terms of the suitability of the site, the agricultural capability of the land, the impacts associated with the “loss” of agricultural productivity and insurance will remain unresolved notwithstanding the findings of the assessment.

Glanmire Solar Farm Project response

Elgin Energy thank Council for their consideration of the EIS findings and acknowledge that impacts on agricultural land remains a key concern for some community members, regardless of the EIS’s conclusions and the engagement around this issue. This included SLR presenting and explaining their findings on the method of assessment regarding the land and soil capability assessment.

Obtaining Social Licence from the local community is a key aim of the Project, and we acknowledge that the engagement results during the EIS phase demonstrated that there remains localised concern regarding the Project. However, there is also support and encouragement from the broader community (including Bathurst).

Elgin Energy will continue to provide opportunities to influence the Project and provide clear information about its perceived and actual impacts, pending Project approval. This is captured within the Projects future engagement activities.

Issue – Insurance issues

The advice from Australian Insurance Council is included in the documentation as follows– "We would like to confirm that there is no position known at this time indicated or highlighting any widespread increased risk relevant to a property neighbouring or being near a solar farm or facility" .

It is likely that the concerns raised by surrounding residents in terms of the suitability of the site, the agricultural capability of the land, the impacts associated with the "loss" of agricultural productivity and insurance will remain unresolved notwithstanding the findings of the assessment.

Glanmire Solar Farm Project response

Noted.

Issue – Socisal impacts

Key issues identified in the assessment are noted as including:

- Visual impacts.
- Impact on properties including property values, insurability and personal wellbeing.
- Impacts associated with loss of agricultural outputs.
- Impacts on future growth of City.
- Growth in renewables.

There is a degree of broader community support for the Project although this does not appear to translate to the local level. At a local level the Glanmire Action Group continues to have significant concerns regarding the Project. Reasons cited for this lack of support include:

- Preference for development to occur within the REZ.
- Loss of productive agricultural land and rural amenity.
- Impact upon highly valued rural landscapes.
- Property values.
- Impact on insurability.

In the broader community there appears to be support for renewable energy Projects more generally from residents and groups such as the Bathurst Climate Change Action Network (BCCAN).
The negative impact of the Project is "evaluated as being of high significance" (SIA p21) requiring mitigation with those mitigation measures including:

- Community and Stakeholder Engagement Plan including short term and long term engagement.
- Accommodation and Employment Strategy including local participation and accommodation for construction workforce.
- Community Benefit Scheme.

It is likely that the concerns raised by surrounding residents in terms of social impacts will remain unresolved notwithstanding the mitigation measures.

Glanmire Solar Farm Project response

The SIA highlights key issues, impacts and recommended mitigations, particularly in relation to the local Glanmire community. The specific issues and impacts listed have been addressed in other responses provided in this document.

We note that in Council's view, it is likely that the concerns raised by surrounding residents in terms of social impacts will remain unresolved notwithstanding the mitigation measures.

The Applicant remains committed to continuing to engage in targeted consultation with impacted near neighbours to identify appropriate and acceptable mitigation measures. Best practice approaches are being adopted (open and transparent, all Project information available and easily accessible) in order to reduce uncertainty and associated stress and anxiety, and to build trust.

Issue – Traffic

The significant issues to be resolved relate to the adequacy of the intersection between the GWH and Brewongle Lane and the impact of construction traffic upon Brewongle Lane. GWH is TfNSW controlled road. Brewongle Lane is a Council controlled road. Traffic movements during construction are estimated to be up to 60HV and 107 light VPD and includes B-Double traffic. The EIS notes that the "Brewongle Lane intersection to the site access will be sealed" (p6 of the EIS). This is in conflict with the conclusion on p13 of the TIA which concludes that "given the expected traffic volume on the local roads is in the order of 200 vehicles per day and the increase in traffic is only temporary it is considered acceptable for Brewongle Lane to remain unsealed".

Based on the estimated peak 167 VPD, the types of traffic generated, and the condition of Brewongle Lane (gravel) Council would require that:

- Brewongle Lane is upgraded to a Rural Roadway in accordance with the requirements of Section 2 Of Council's Guidelines for Engineering Works between the proposed site entrance and the Great Western Highway Intersection (a distance of approximately 320m).
- This upgrading would include sealing between the GWH and the proposed entry as noted in the EIS.
- The property entrance is upgraded to accommodate B-double vehicles movements including sealing between the entrance gateway and the edge of bitumen in the upgraded public roadway.
- Construction traffic access should be limited to entrance from the GWH. No access to the site should be from the south (i.e., Tarana Road and Brewongle Lane).

Appropriate management controls will need to be put in place to reflect this requirement.

The assessment of the adequacy of the intersection of GWH and Brewongle Lane is unclear whether this includes an assessment of the types of vehicles (i.e., HV and B-Doubles) using the intersection. If the adequacy of the intersection is purely based on volume as opposed to the type of vehicles (HV) this may impact upon this conclusion. Ultimately the adequacy of the intersection and any upgrades will need to be determined in consultation with TfNSW.

Glanmire Solar Farm Project response

The TIA has been updated to address TfNSW's submission (provided above) and is Appended in full, Appendix E.

The Applicant can confirm that:

- This upgrading would include sealing between the GWH and the proposed entry as noted in the EIS.
- The property entrance is upgraded to accommodate B-double vehicles movements including sealing between the entrance gateway and the edge of bitumen in the upgraded public roadway.
- Construction traffic access would be limited to entrance from the GWH. No access to the site should be from the south (i.e., Tarana Road and Brewongle Lane).

To clarify, the Project now commits to:

> *T1.1 No access to the site should be from the south (i.e., Tarana Road and Brewongle Lane).*

Issue – Non-Aboriginal heritage (Woodside)

The report does not adequately discuss the potential visual impact of the solar array from Woodside when viewed from the GWH. The current curtilage around Woodside is cleared pasture and Woodside remains the dominant visual structure of this view. Whilst the report indicates that no physical works are occurring within Woodside, the report is silent on potential visual impacts, mentioning only that the item is outside the works area.

The Landscape and Visual Impact Assessment (prepared by IRIS, September 2022), indicates (pg. 39) that the view from the GWH has low visual sensitivity given the intervening landform and vegetation. However, given community concern, a moderate scenic quality is to be adopted. This viewpoint, however, is taken from the corner of the
GWH and Brewongle Lane and has not provided an assessment in a location in close proximity to Woodside to determine if there is any visual impact to the heritage item. Further information regarding visual impact in relation to Woodside is required.

Glanmire Solar Farm Project response

The historic heritage assessment within the EIS concludes:

The vegetation (existing and proposed) will screen the view of the solar array from the road and ensure the environmental context of Woodside Inn building remains intact. This will ensure no loss of heritage value to the Woodside Inn building.

The 300m exclusion zone for permanent above ground infrastructure has been developed to ensure that northern section of the site, highly visible to the highway, remains free of this type of infrastructure.

The southward sloping terrain and planting proposed in the Concept Landscape Plan demonstrate the protection this also affords views from Woodside (refer to Figure 5-3).

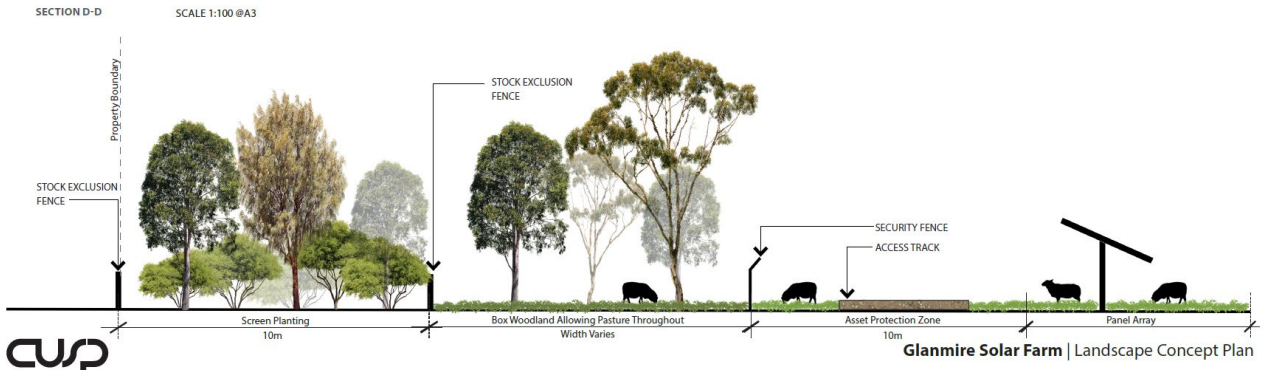


Figure 5-3 Extract: Concept Landscape Plan.

Issue – Non-Aboriginal heritage (Woodside) acknowledgement

The Historical Background indicates that Thomas Kite was a previous owner of Woodside. Thomas Kite worked under William Cox on the construction of the road to Bathurst in 1815 and was awarded one of the first 10 land grants to free settlers in Bathurst (first 10 land grants located on eastern side of Macquarie River at Kelso).

Table 4-1 of the report indicates there is no associative significance of Woodside. Whilst the proposed physical works will not impact on the significance of the heritage item, it is worth noting the significance of Thomas Kite as a previous owner of the site.

Glanmire Solar Farm Project response

Noted.

The vegetation (existing and proposed) will screen the view of the solar array from the road and ensure the environmental context of Woodside Inn building remains intact. This will ensure no loss of heritage value to the Woodside Inn building.

Issue – Continued opposition

As is to be expected of a Project of this scale, it has generated a wide range of views as to the merit of the Project generally with specific concerns emanating from within the locality.

Those concerns have been well documented through the Community Consultation Committee and through the EIS preparation. Those concerns within the locality are likely to remain unresolved notwithstanding the findings of the EIS. It is right that these concerns are raised and that they be given the appropriate attention relative to the adopted planning standards for the Project.

The EIS, whether it is universally accepted or not, provides a proper basis for those concerns to be considered. Council has provided comments as to various matters raised in the EIS and can expand upon those or provide further details if necessary.

Glanmire Solar Farm Project response

Noted. In consideration of the establishment of a Community Consultation Committee early in the planning and assessment of the Project, Elgin Energy see that this provided an additional forum to discuss issues at length, ask follow-up questions and often seek specialist input into these discussions. Particularly useful information sessions included:

- DPE explaining the role of the CCC and the SSD assessment process.
- NGH explaining the avenues for community input into the assessment process.
- IRIS explaining the methodology adopted to assess visual impacts.
- SLR presenting and explaining their findings on the method of assessment regarding the land and soil capability assessment.
- NGH explaining the methodology adopted to assess various environmental parameters, raised by the CCC.
- NGH providing an update on the relationship between the Project and offsite Essential Energy transmission line augmentation works and the likely impacts of these works.
- NGH providing the key results of the visual assessment, biodiversity assessment, hydrology assessment, Aboriginal heritage assessment, land use compatibility assessment, Noise assessment prior to EIS exhibition.

The CCC engaged with the Project at each meeting and is likely to have increased the level of general community understanding about the assessment process, methods used during the assessment, early results and avenues to participate once the EIS was on exhibition.

6. Project justification

6.1. Evaluation, subsequent to Project changes

In response to the submissions, several mitigation strategies have been strengthened to provide greater certainty. These include:

- Aboriginal cultural heritage management, during construction.
- Traffic management, during construction.
- Fire and emergency planning provisions, during operation.
- Soil and rehabilitation commitments, during design, construction and decommissioning.

Consultation activities have been developed to communicate these changes as well as the key issues raised in submissions and provide some further information around these and the next step for the Project's assessment and determination.

An Amendment Report (NGH 2023) has been prepared to address the one change proposed to be made to the Project. This relates to the battery components of the Project and would extend the onsite storage duration or the Project from one to two hours. All other Project infrastructure elements remain the same.

6.2. Ecologically Sustainable Development

Ecologically Sustainable Development (ESD) involves the effective integration of social, economic and environmental considerations in decision-making processes. In NSW, the concept has been incorporated into legislation including the EP&A Act, the EP&A Regulation and the *Protection of the Environment Administration Act 1991* (NSW).

The Project has considered and addressed the principles of Ecologically Sustainable Development (ESD), which involves the effective integration of social, economic and environmental considerations in decision-making processes. With reference to the Glanmire Solar Farm:

- The precautionary principle has been adopted in the assessment of impact; all potential impacts have been considered and mitigated commensurate with risk. Where uncertainty exists, measures have been included to address the uncertainty. For example, a 'worst case' impact assessment has been undertaken to account for the uncertainty in the final impact footprint.
- Potential impacts have been assessed as likely to be localised and reversable and would not diminish the options regarding land and resource uses and nature conservation available to future generations. Importantly, the Project provides additional renewable energy that contributes to minimising the risk of climate change to current and future generations by reducing the carbon emissions produced in comparison to alternative fossil fuel electricity generation options. Opportunities to improve the soil health and landscape character have been identified.
- The Project would be decommissioned at the end of its operational life, removing all above ground infrastructure with the exception of the onsite substation and Essential Energy connection assets. Rehabilitation targets set in relation to site soil surveys will ensure the site is returned to its existing (or better) land capability for future generations.
- The value of the environment is made clear in the Project's protection of land capability, soil and hydrology and their broader contribution to the catchment and catchment processes. The long-term impacts have been considered and the Project commitments ensure that natural resource use and pollution risks have been fully assessed and costs would be solely borne by the Applicant.

6.3. Overall justification for the Project

The Glanmire Solar Farm's objectives are both strategic as well as specific in terms of outcomes for the local community. They include to:

- Generate renewable energy and improve network stability.
- Provide new industries and opportunities to the Bathurst region.
- Minimise environmental impacts.
- Maximise social licence to operate.

6.3.1. Generate renewable energy and improve network stability

The Project's location is highly suitable for renewable energy generation; it is a largely modified grassland of low relief, in close proximity to the regional centre of Bathurst and a grid connection. It is able to make a meaningful contribution to the state's transition away from fossil fuel generated electricity and its adverse climate effects. The Project would contribute to reducing greenhouse gas emissions. The Project would provide energy for approximately 28,000 homes in NSW per annum, also displacing approximately 130,000 metric tonnes of CO_2 per annum [9].

The Project aligns with federal and state regional renewable energy policies as well as regional and local land use plans. Specifically, these include:

Federal and state regional renewable energy policies	Regional and local land use plans
• **C**limate Change Act 2022 • Paris Agreement • Australian Government Renewable Energy Target (RET) • Net Zero Plan Stage 1: 2020–2030 • NSW Climate Change Policy framework • Climate Change Fund Draft Strategic Plan 2017 to 2022 • NSW Electricity Strategy	• Draft Central West and Orana Regional Plan 2041 • Renewable Energy Action Plan 2020 (Bathurst Regional Council) • Vision Bathurst 2040 – Bathurst Region Local Strategic Planning Statement • Bathurst 2040 Community Strategic Plan • Renewable Energy and Regional Cities, TISEPP

The Project responds to general community support for a faster transition to renewable energy generation.

6.3.2. Provide new industries and opportunities to the Bathurst region

The Subject land selected for the Project has been demonstrated to be highly suitable for the development of the new local land use of solar power generation. Potential land use conflicts have been assessed and demonstrated to be of a low level and highly manageable. Assessed against the Land Use Conflict Risk Assessment Guide (DPI, 2011), the highest potential for conflict was seen for:

- Agricultural conflicts.
- Rural residential conflicts.
- Regional growth conflicts.

[9] Based on a 0.81kg CO_2(e) / kWh emission factor for NSW and average consumption of 18kWh per day.

For agricultural conflicts, the continued agricultural use on the Subject land during the life of the Project would be almost entirely curtailed. This is not considered a conflict at a local rural economy level; the one landowner will be compensated by their involvement with the Project. No impact on adjacent agricultural operations is likely; either to the agricultural equipment, activities or soil capability. Fire ignition and fire spread risks as well as risks to soil and water are considered highly manageable and likely to be offset by longer term benefits of less intensively worked land in operation. Land capability will be retained and likely improved, after the decommissioning of the Project.

Considering rural residential conflicts, traffic disruption, dust and noise may affect nearby residents temporarily, during peak construction. These are considered temporary impacts and are manageable. Operational views from dwellings may reduce enjoyment of these areas. The Project setbacks and exclusion zones that have been developed ensure:

- No greater than very low visual impacts to three residences, due to mitigation.
- Glare impact from one dwelling and from Brewongle Lane reduced to negligible with the implementation of the landscape plan.

Considering potential for regional growth conflicts, as it is not located in a residential expansion zone, operational views from the only relevant regional vista, the Great Western Highway / eastern entrance to Bathurst, were assessed. Project setbacks, a visual exclusion zone and proposed vegetation screening are able to mitigate impacts to the landscape scenic value. With specific reference to the newly adopted Transport and Infrastructure SEPP, which provides for the consideration of renewable energy Projects in regional cities including Bathurst, the visual impact assessment of the Glanmire Solar Farm has concluded:

- No significant impact on the scenic quality and landscape character of this regional city will result.
- With the mitigation measures proposed, there may be improvement to the landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site.

6.3.3. Minimise environmental impacts

The infrastructure layout developed has incorporated exclusion zones and setbacks to not only protect onsite values (such as the local heritage item ‘Woodside’ and riparian waterways) but will also enhance offsite environments, via its commitment to additional native vegetation plantings. The additional riparian planting, along with a reduced agricultural regime, will improve water quality outcomes, in this drinking water catchment. The incorporation of perimeter planting and larger southern active planting areas are additional to the Large-Scale Solar Energy Guideline, DPE, August 2022 requirements but have been undertaken to demonstrate to neighbours of the Project and the broader community, the Project’s commitment to meeting and exceeding best practice.

The Glanmire Solar Farm Project has exceeded assessment and mitigation requirements applicable to it, to demonstrate to the community its commitment to ensuring this Project is exceptional and industry-leading in all Project stages. This includes conservative assumptions in relation to uncertainty, for example:

- Adoption of conservative background noise levels.
- Adoption of elements of the recently released draft and final visual assessment guidance by DPE..
- Mitigation of visual impacts assessed as very low
- Higher than required soil sampling.
- Conservative application of Land and Soil Capability ratings.
- Conservative traffic numbers assumed (no reduction for use of shuttle buses assumed).
- Some unapproved dwellings considered in the visual, noise and cumulative impact sections even though Council approval has not yet been sought.

Furthermore, the Development Footprint is larger than will likely be required by the final infrastructure layout. This 'over-estimate' of the footprint provides important flexibility to the Project but also ensures the impact assessment has been undertaken as much as possible from a 'worst case' assumption of impacts.

6.3.4. Maximise social licence to operate

For utility scale State Significant solar farm Projects, with their unique contribution to broader environmental impacts of climate change and energy security, and their concentration of local benefits (such as economic stimulus and employment) greatest in the construction and decommissioning stages, engagement is particularly important to ensure that the Project's impacts will be acceptable to the community, and equitably spread its benefits.

The key messages distilled from the community during the engagement to date and along with the Glanmire Solar Farm Project team's response is provided below. Where possible, the team has aimed to exceed expectations and thereby maximise the Project's social licence to operate.

Table 6-1 Project response to community issues raised

Topic raised by the community	Glanmire Solar Farm Project response
The need for renewable energy developments	The contribution of the Project in assisting the grid's transition to renewable energy sources has been detailed in the EIS's strategic context.
The location of the solar panels, substation, and battery in close proximity to near neighbours	A site tour was held with the CCC in April 2022 and high-level site schematics were provided throughout the engagement period. The visual assessment consultant presented her methodology to the CCC. NGH presented the early results of the assessment to the near neighbours throughout the consultation period. An indicative infrastructure layout and landscape plan incorporating the draft assessment results was distributed in a Project update to the near neighbours and the Glanmire Action Group, in early September 2022. Clarification was made regarding visual impact ratings in a Project update to the near neighbours, in early October 2022. The final layout and landscape plan have included additional mitigation (exclusion zone and planting areas) for near neighbours, more than that required by the latest guidelines.
The desire for the solar farm to be located in a REZ instead of this site	This was discussed at the first CCC meeting, and a response was provided to the CCC members via the CCC Chair and the Applicant. Clarification on the REZ zones was articulated in a detailed FAQ document which was distributed to the

Topic raised by the community	Glanmire Solar Farm Project response
	Glanmire Action Group, wider stakeholder groups and also published on the Project website.
Placement of a solar farm within 5km of Raglan, with regard to the State Environmental Planning Policy (Infrastructure) Amendment (Solar and Wind Energy) 2021[10]	A detailed response was developed and shared with the CCC in April as part of a detailed FAQ (which was posted on the Project website, emailed out, noted in letters and shared at information sessions). The Project team explained at the May drop-in session that this did not automatically prevent placement of a solar farm in the proposed location, and that the EIS would consider and assess the merits of the Project in relation to planning requirements. To best address potential to impact scenic character, the final infrastructure layout and landscape plan includes setbacks from the highway, an additional array exclusion zone and specific planting areas. As the planting develops, a positive impact on local scenic character would result.
Impacts on agricultural land	SLR presented the findings of the soil quality assessment and outlined the AIS methodology to the CCC in April 2022. This included an outline on how the soil had been classified between grade 4 and 5, meaning it was permissible to support a solar farm. Peer review and an Agricultural Impact Statement were undertaken as part of the EIS to demonstrate a high level of confidence in this aspect of the assessment. The submissions show there is still concern over this issue. A newsletter update was provided in April 2023 and in June 2023 work commenced on an updated Soil and Agricultural Impact Assessment that now includes increased soil sampling and analysis. While Project impacts are found to be negligible, updated mitigation strategies have also been included to eliminate the permanent risks and control the temporary risks of the Project on land and soil resources.
Impacts on tourism	An early decision was made to pull the solar panel layout area back away from the highway, making it

[10] https://legislation.nsw.gov.au/view/pdf/asmade/epi-2021-778

Topic raised by the community	Glanmire Solar Farm Project response
	barely visible from the highway when driving towards Bathurst (300m set back). An additional visual exclusion zone was incorporated into the layout in September 2022 to remove potential for glimpse views of the solar arrays. The highway views on entrance to Bathurst, including glimpse views, have been eliminated through setbacks and screen planting. While some people may want to view the Project, views are possible from Brewongle Lane.
Impacts on the local economy and the ability to share benefits through local partnerships and contributions	SLR's Agricultural Impact Statement has demonstrated that impacts to regional agricultural resources and enterprises from the Project are expected to be negligible. Key soils and Project rehabilitation commitments were communicated to the Glanmire Action Group in September 2022. The Project Team engaged with near neighbours and the broader community to discuss the opportunity to share the benefits that the Project can bring. The results are included in the proposed: Community and Stakeholder Engagement Plan, Accommodation and Employment Strategy and Community Benefit Sharing Program. The latter includes eight local initiatives identified from the consultation as being of value to the program (refer Section 3.5.3 of EIS). Discussions have commenced with the Chamber of Commerce and Bathurst Regional Council (BRC) to develop skills needed maximise opportunities for with local industries.
Visual impacts	The Project Team engaged early and directly with near neighbours to complete visual assessments and residents within 3km were offered the opportunity to book in a visual assessment. Six visual impact assessments were completed throughout the consultation period. The visual assessment aimed to exceed the SEARs requirements; several unapproved dwellings are considered to provide clarity to neighbours around these impacts. While the final DPE Guideline (2022) only requires the assessment of glare from roads up to 1km, this investigation considered a distance of 3km and the mitigation strategy exceeds requirements. Mitigation is provided for low and very low visual impact ratings to further reduce impacts.

Topic raised by the community	Glanmire Solar Farm Project response
Impacts on insurance policies of neighbours	The Australian Insurance Council advice was sought by Elgin Energy and tabled at the second CCC meeting. It was included in the detailed FAQ and shared across the community. This advice demonstrated that the Project was not expected to have an impact on the insurance policies of neighbouring properties. Since the EIS was exhibited, several insurance providers have been consulted o understand this issue. The Australian Insurance Council was consulted prior to EIS exhibition and again after, on this issue. Communication with NIBA the National Insurance Brokers Association advised there is no evidence of increasing insurance premiums. From the consultation with these insurance providers there is no evidence of increased insurance premiums being associated to neighbouring farms to a solar Project. This update has been communicated to stakeholders in a newsletter update April 2023.
The corporate and commercial structure of the Applicant	The structure of the company was detailed in the FAQ document and provided in subsequent CCC and community information session discussions.
Subdivision and land devaluation	The Project Team explained that there was no evidence available to suggest that renewable energy Projects impact land value. It was also noted that the value of rural land had typically been increasing in recent years and the effect of renewable energy infrastructure had not been quantified in any available studies. This information was shared in information sessions, in CCC meetings, via the website, email correspondence and on the website via the FAQ document.
The site selection	The Project Team explained in detail why the site was selected which included grid capacity, site location and conditions. This was also detailed in Project engagement materials which was circulated via email, posted mail, phone calls and at the May information session.
CCC management	Two DPE representatives attended the May CCC meeting via MS Teams to explain both the CCC arrangements and the Project assessment process overall.

6.3.5. Benefit summary

The Glanmire Solar Farm Project will:

- Support federal, state and local planning schemes aimed at assisting the transition to renewable energy production; required to address urgent climate change impacts on our environment and economy.
- Increase the income generated from the site by a significant factor while remaining compatible with existing and likely future land uses.
- Address community expectations to meaningfully transition to emission free electricity generation and reduce climate change impacts, including:
    - **Providing energy for approximately 28,000 homes in NSW per annum. This is the equivalent of powering Bathurst [11].**
    - Displacing approximately 130,000 metric tonnes of CO2 per annum[12].
- Improve the capacity and security of the electricity grid and placing downward pressure on electricity prices for consumers.
- Generate employment and training opportunities as well as local economic stimulus for the local community, its residents and businesses, in a growth industry while spreading the benefits of the Project to the community, including provision of approximately 150 jobs during construction and 1–3 full time equivalent jobs during operation.
- Provide ongoing benefit-sharing with the community, specifically developed to include local initiatives (eight initiatives have been identified from consultation with the community but will be finalised with Council's further input). Benefit sharing opportunities identified provide real and ongoing value to the Bathurst community. The intention is to create a fund for the life of the Project which can support very localised and meaningful community development or other neighbourhood-level initiatives that have strong resident support, throughout the life of the Project.
- Ensure no significant impacts on the scenic character of the area; with the mitigation proposed, there would be some improvement to the landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees as part of the Project's Landscape Management Plan.
- Demonstrate a strong commitment to addressing neighbour concerns regarding visual impacts, by exceeding assessment and mitigation guidance applicable to this Project and offering to work with those most affected around decisions that affect them.

6.3.6. Scale and nature of impacts

In terms of soil disturbance, solar farm development has more similarities with linear developments (such as road and power lines) when compared to other large site-based developments (such as land development or mines). The majority of soil disturbance is attributable to discrete footings and all-weather roads formation around the perimeter of the site as well as limited benching and cut and fill for larger structures like the battery and substation area (depending on topography). The vast majority of the site will remain as pasture, shaded beneath the solar panels. Estimations for this Project are that for the 158.6ha Development Footprint proposed:

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[11] Based on population data for Bathurst Regional Council area in 2021; with 43,567 people, living in 18,463 dwellings and assuming an average household size of 2.45.

[12] Based on a 0.81kg CO2(e) / kWh emission factor for NSW and average consumption of 18kWh per day.

- Around 4% of the soil surface would require substantial levels of disturbance (~ 6ha).
- Well in excess of 90% of the Development Footprint will be remain as pasture for the life of the Project, once post-construction remediation is complete (~143ha).

The Glanmire Solar Farm is considered highly reversable at the end of its Project life. The objective of decommissioning would be to return the land to as close to its pre-construction condition as possible. Baseline soil mapping collected prior to construction would be used to verify the site has been returned to its existing (or better) land capability. All below-ground infrastructure would be removed to a maximum depth of 500mm. All above-ground infrastructure would also be removed, with the possible exception of the 66kV substation (with a footprint of approximately 0.5 ha), as this would be up to the discretion of the asset's owner, Essential Energy.

Acute impacts are concentrated over a relatively short 4-month peak construction period, where careful management planning has a high-level of confidence of managing the impacts identified (noise, traffic, dust). In operation, the solar farm requires very little onsite activity. Key amenity impacts (views and noise) have been reliably modelled, as presented in this EIS, to ensure compliance with regulatory requirements. Accurate photomontages have formed a key tool for communicating these impacts with the community and for designing mitigation screening to best effect. The key physical impact is the effect of shading on groundcover; now demonstrated in many studies to improve soil health and fertility by reducing temperature extremes and increasing humidity beneath the solar arrays. Rehabilitation objectives are part of the Project's commitment and will ensure this reversable Project provides the same or better agricultural opportunities for the site and will allow for any number of appropriate alternative land uses.

The key assessment outcomes, their confidence level and compliance with regulatory requirements are summarised below.

The Glanmire Solar Farm meets all relevant planning provisions and guidelines and is considered justifiable and acceptable.

Table 6-2 Key assessment outcomes, their confidence level and compliance with regulatory requirements

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Visual impact	• Low landscape character impact – no mitigation required but it is noted the mitigation proposed may enhance landscape character due to the revegetation of two streams within the site with riparian vegetation, and the planting of hundreds of trees around the perimeter of the site. • Very low visual impact on views east bound from the Great Western Highway - with mitigation this reduces to no impact in the long term. • No visual impact from the Great Western Highway on the approach to Bathurst - due to setbacks and an array exclusion zones proposed. • A moderate visual impact on views from Brewongle Lane, reducing to low visual impact with the implementation of the landscape plan. • Very low visual impacts on six surrounding dwellings and low visual impacts on three residences on day one. With the implementation of mitigation this impact would reduce to three residences with a very low visual impact. • A low glare impact from one dwelling and from Brewongle Lane without mitigation, reduced to negligible with the implementation of the landscape plan.	For visibility and photomontage modelling, LiDAR data flown in 2013 and 2018 is used. Accuracy is improved via site inspections with surveyed points used to ground truth images. All reasonable efforts have been made to build conservatism into the assessment, including modelling panel angles for greatest visibility / contrast, by using the largest array area that could be developed within the Development Footprint and by modelling the uppermost array height of 3.5m (the average height is much less than this). The glare analysis model exaggerates the potential for glare. The software is therefore likely to predict solar reflections over a larger area and for a greater length of time than would be experienced in reality.	The assessment exceeds the SEARs requirements; several unapproved dwellings are considered to provide clarity to neighbours around these impacts. While the final DPE Guideline (2022) only requires the assessment of glare from roads at a distance of up to 1km, this investigation considered a distance of 3km. The mitigation strategy exceeds requirements; mitigation is provided for low and very low visual impact ratings to further reduce impacts.

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Biodiversity	• Native vegetation remnant integrity is too poor to generate an offset requirement. • Offsets are generated for ten scattered trees and two species assumed to occur (Southern Myotis and Superb Parrot). • No Serious and Irreversible Impacts.	Where uncertainty was present, the assessment has taken a precautionary view; if suitable habitat occurs and surveys have not met the required guidelines, species are assumed to occur. Two species are assumed to occur and will be generate offset requirements.	All relevant aspects of the Biodiversity Assessment Methodology have been applied and mitigation strategies are in line with agency expectations. This includes meeting an offset obligation and managing all stages of the Project under a Biodiversity Management Plan to minimise harm to biodiversity. The avoidance strategy demonstrates the areas of highest value (riparian areas including several mature trees) have been retained.
Aboriginal heritage	• The site is highly modified. • Two sites detected during field surveys; a single quartz flake in a disturbed ploughed location and a culturally modified Yellow Box tree in the riparian zone. • These will be protected from impacts by moving the flake to the exclusion zone.	A thorough archaeological survey of the Project was conducted to identify and minimise the harm to Aboriginal objects as guided by the precautionary principle and with input from Local Aboriginal community stakeholders.	The Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011), Aboriginal Cultural Heritage Consultation Requirements for Applicants (DECCW, 2010) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010) have been followed. A Cultural Heritage Management Plan will include provisions for relocation and protection of sites as well as containing protocols for unexpected finds.

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Land compatibility	Updated Soil and Agricultural Impact Assessment has verified the productive capacity of the land with a very high degree of confidence showing: • Some Class 3 important agricultural land occurs (40.6 ha representing 22% of the Study Area). • Permanent impacts on Class 3 land can be minimised (the only permanent impact being the substation area of 0.5ha). • The temporary and permanent impacts on agriculture are considered a negligible impact in the context of the gross commodity values and land use coverage of the agricultural industries operating within the Bathurst Regional Council LGA. Considering adjacent land uses there would be: • Low impact on rural residential land use, regional growth and transport corridors. • Low impact on aviation. Key mitigation strategies centre on soil, water and ground cover management plans to protect the site's values through all stages of the Project.	Data base soil mapping has been ground validated with additional soil survey and analysis. Soil sampling methods exceed guideline requirements and take a conservative approach. Unapproved dwellings are considered at a high-level even though Council approval has not yet been sought.	Soil surveys, an Agricultural Impact Statement in consultation with DPI and Land Use Conflict Risk Assessment have been applied, meeting best practice assessment requirements. The Project commits to a ground cover management plan to restore the agricultural land capability to existing or better condition.

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Hydrology and water use	• The risks to local hydrology are low and have been mitigated through design measures, primarily. • The risks of erosion and water quality are considered low given the nature of the development and are well understood with reference to base line soil surveys and ground truthed land soil capability mapping. • Water use requirements of the Project can be met locally. Management protocols using standard strategies have a high confidence level in managing the risks identified.	This assessment is modelled using the most reliable computer modelling available at the time of assessment.	Mitigation specifically addresses Managing Urban Stormwater: Soils & Construction (Landcom 2004).
Noise	• Limited construction exceedances when concurrent equipment is operating within 700m of four dwellings. The exceedance is which can be managed with reasonable and feasible measures. • Traffic noise levels as a result of the construction works are not expected to adversely affect residences. • Very low potential for vibration impacts. • No operational exceedances will be discernible at any residence.	Rather than use actual noise logging, which may be impacted by highway and farm machinery noise, the quietest rural background noise level was assumed. To understand the interaction of equipment used in the construction program, the 3 noisiest plant were modelled as operating concurrently. This provides a conservative outcome and ensures noise mitigation strategies will similarly conservative, reducing risks of adverse noise impacts and complaints.	A noise management plan will further minimise noise by managing staff behaviour onsite, equipment use and consulting with neighbours promptly regarding any noise complaints.

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Social and economic	• Potential to exacerbate pressures on accommodation and rental housing is the key adverse impact and is most relevant to tourists, residents and vulnerable populations utilising temporary accommodation during the construction stage. • Significant benefits accompany construction and operations where local skills, employment, community investment and a local contribution to climate change accrue, in line with community input for the Project. • Key elements of the social impact management framework include a Community and Stakeholder Engagement Plan, an Accommodation and Employment Strategy as well as a Community Benefit Sharing Program (eight appropriate local initiatives have been developed in consultation with the community).	A key uncertainty includes the availability of information. The SIA has been undertaken with information that is known about the Project and the social context at the time of writing, and social impacts have been predicted based on this information.	The SIA was informed by the principles of best practice as outlined in Social Impact Assessment Guideline (DPIE, November 2021)

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Traffic	• A new site access has been designed to allow two B-Double vehicles to access the solar site. • No further road upgrades are required to manage impacts on the road assets or road safety: • The intersection of Great Western Highway and Brewongle Lane is provided with suitable turn treatments and adequate sight distance to allow vehicles to safely enter and exit the State road network. • The additional traffic generated by the Project (mostly focused in a four-month period), in consideration of other Project's likely to take place nearby, is well within the capacity of the existing road network. • There will be an active traffic management solution that will be deployed to ensure the safety of all road users during the construction of the Project. • The access to the site will be sealed to meet Council's request.	Shuttle busses may be provided that can transport staff to/from the site reducing the number of private vehicles used. However, for the purposes of assessment it has been assumed that all staff arrive in private vehicles in order to undertake a conservative assessment. In the calculation of sight lines, a higher speed limit has been assumed for the Great Western Highway and Brewongle Lane to build conservatism into the assessment.	The assessment includes a Traffic assessment, Route assessment, Cumulative assessment and Intersection assessment as required.
Historic heritage	• The locally listed 'Woodside' residence will be avoided. Other artefacts identified had low significance. • An unexpected finds protocol will be implemented for all stages of the Project.	Impact to historic heritage is considered a very low risk; conclusions are based on historical studies and site surveys and mitigation includes an unexpected finds protocol.	The impact assessment has regard to the NSW Heritage Manual.

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Hazards and risks	• No high risks have been identified; the risk profile for the Project is considered to be tolerable if So Far As Reasonably Practicable (SFARP). • The risk assessment concluded that there is no potential for offsite fatality or injury and therefore, meets the land use planning criteria. • Final infrastructure layouts and management plans will adopt the setbacks and protocols outlined in the assessment.	The approach taken is a risk-based approach. It is noted that the BESS model has not been selected. Assumptions are made clear in the assessment. All EMF producing infrastructure would follow Australian and industry standards.	Management plans will be developed to reflect site specific conditions and final infrastructure selections: • Bush fire Emergency Management and Operations Plan • Fire Management Plan • Emergency Response Plan • Fire Safety Plan
Air quality and climate	• Key adverse impacts are concentrated during the peak construction stage of 4 months and considered manageable. • Potential heat island effects will be low on surrounding properties. • The greatest impact is the positive contribution to addressing climate change effects, by assisting in the transition to renewable energy generation.	NA	
Resources and waste	• The use of the required resources is considered reasonable in light of the benefits of offsetting fossil fuel electricity generation. • Wastes can be minimised in accordance with statutory requirements.	Upper limit estimates of impact areas and material quantities are used to address uncertainty, building conservatism into the assessment and mitigation.	While a license is not required, wastes will be managed in accordance with the *Protection of the Environment Operations Act 1997* and *Waste Avoidance and Resource Recovery Act 2001.*

Impact	Results of assessment	Approach to uncertainty	Assessment requirements
Cumulative impacts	• Relevant Projects which may produce cumulative impacts were identified as additional residences which may be constructed on adjoining land parcels, the refurbishment of the existing Essential Energy 66kV infrastructure13, located on the site's northern boundary, and several large-scale Projects in various stages of assessment, within 65km of the site. • The assessments have concluded that these low impacts are manageable.	As the timing of these relevant Projects is largely unknown, the assumption is that they may occur concurrent with either construction or operation of the solar farm.	Further consultation is required with near neighbours, detailed assessment requirements are noted for the Essential Energy 66kV infrastructure refurbishment and traffic management planning is detailed to ensure any cumulative impacts are minimised as much as possible.

[13] As the detailed design of the 66kV infrastructure refurbishment and any flow on ancillary works has not yet been developed by Essential Energy, assessment and consultation with the community around these works has been high-level using what is currently known regarding the works; assumptions are made clear in the assessment and mitigation measures are included in the assessment of cumulative impacts; Section 7.3 (in full in Appendix E).

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