



Marulan Solar Farm

State Significant Development
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Executive Summary

Terrain Solar Pty Ltd (Terrain) proposes to develop a 152 megawatt (MW) solar farm, including energy storage, approximately five kilometres west of Marulan in Goulburn Mulwaree local government area.

The Department exhibited the project's Environmental Impact Statement and received seven public submissions – two in support, three in objection and two providing comments. In addition, 13 government agencies, including Goulburn Mulwaree Council (Council), provided advice.

In response to the agency advice and submissions, Terrain made minor refinements to the project including retention of farm dams and additional mitigation measures through management plans.

The project site is located on land currently used for grazing zoned RU1 Primary Production. Lands surrounding the site include several watercourses, the Main Southern Railway, powerline easements, a high-pressure gas pipeline and the Hume Highway. The project site is relatively remote, with a limited number of nearby residences.

The key assessment issues are land use compatibility and energy transition. However, the Department has also undertaken a comprehensive assessment of the full range of other potential impacts, including noise, biodiversity, visual, hazards, traffic and heritage. The Department has recommended a range of detailed conditions, developed in conjunction with agencies and Council, to ensure all potential impacts are effectively minimised, managed or offset. The Department has also required additional avoidance of impacts on historic heritage values by extending development exclusions zones to the north and east of the locally listed Ruins of Kyle.

Overall, the Department considers the site to be suitable for the project as it has good solar resources and available capacity within the existing electricity network and is generally consistent with the Department's Large Scale Solar Energy Guideline. The project site is close to the Hume Highway in a rural area, with relatively limited impacts on surrounding receivers and land uses.

The project is consistent with the Commonwealth's Renewable Energy Target and NSW's *Climate Change Policy Framework* and the *Net Zero Plan Stage 1: 2020-2030*, as it would contribute 152 MW of renewable energy to the National Electricity Market as well as 150 MW of energy storage and firming capacity.

The project would also provide flow-on benefits to the local community, including up to 300 construction jobs, a capital investment of \$398 million, and staged contributions to Council of approximately \$1.7 million over the life of the development for community enhancement projects.

The Department considers the project would not result in any significant impacts on the local community or the environment, and any residual impacts can be managed through the implementation of the recommended conditions. The project would result in benefits to NSW and is therefore in the public interest.

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1 Project

Terrain Solar Pty Ltd (Terrain) proposes to develop a new 152 megawatt (MW) State significant development (SSD) solar farm and associated electricity transmission line and battery energy storage system (BESS), approximately five kilometres (km) west of Marulan in the Goulburn Mulwaree local government area (see **Figure 1**).

The project would include a 150 MW / 600 MW-hour (MWh) battery storage, an on-site switching station, substation and connection (either above ground or below ground) to Essential Energy’s 132 kilovolt (kV) transmission line, which crosses north-south through the site (see **Figure 2**). It also involves the decommissioning of equipment at the end of the life of the project.

Access to the site is proposed via the Hume Highway and an access road connecting the site with Munro Road to the south. The accessway would be constructed prior to the construction of the solar farm, which is estimated to occur over approximately 18 months, with a peak construction period of approximately 12 months. The project would have a capital investment value of approximately \$398 million and includes a voluntary planning agreement of \$1.7 million over the life of the project.

The key components of the project are shown in **Figure 2** and described in detail in the Environmental Impact Statement (EIS) and supporting documentation (see **Appendices A, D and E**).

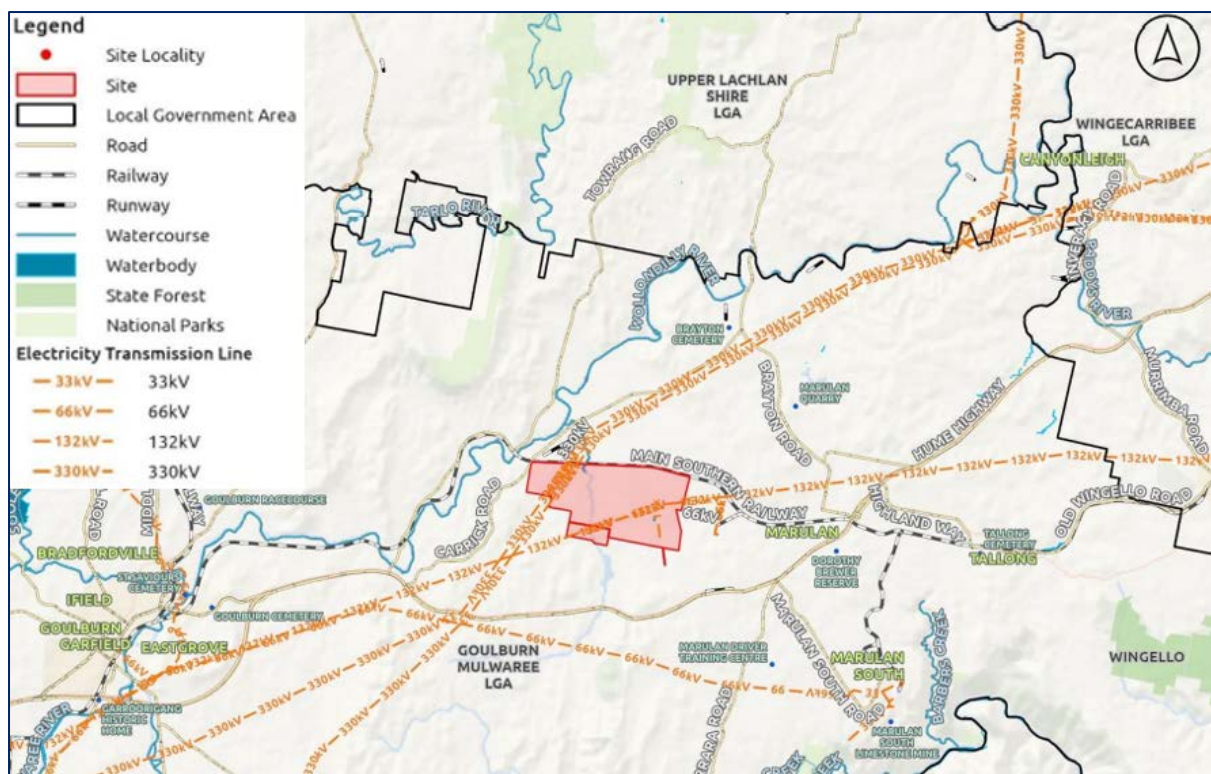


Figure 1 | Regional Context (Source: EIS)

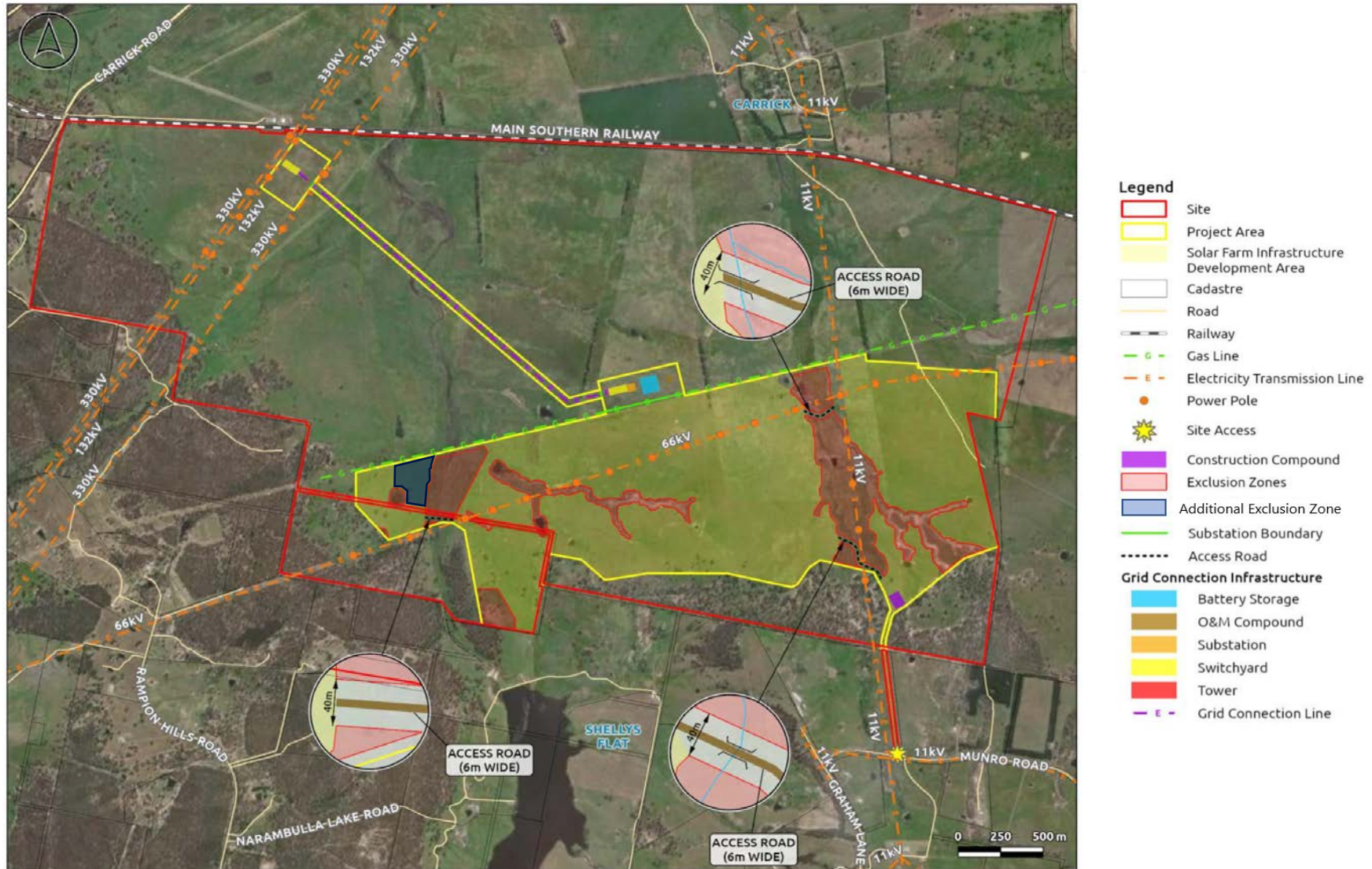


Figure 2 | Project Site (Source: EIS)

2 Strategic Context

2.1 Local Context

The site is 1,400 ha of which approximately 330 ha would be used by the development. The site is substantially cleared grazing land zoned RU1 Primary Production. Surrounding lands are also largely used for grazing with some smaller areas of cropping. The Holcim Lynwood Quarry is located east of the site and Gunlake Quarry north of the site.

The site is bounded by the Main Southern Railway to the north, with transmission infrastructure and a high-pressure gas pipeline traversing the central and north-western portions of the site. There are several watercourses intersecting the site as well as a number of small farm dams. Site access is currently via Carrick Road to the north-east, however a new southern access for the solar farm is proposed from Munro Road via the Hume Highway.

2.2 Energy Context

As the transition from coal-fired power to renewable energy sources accelerates in NSW, there is an increasing need for renewable energy generation sources, including energy storage.

NSW is one of the nation's leaders in large-scale solar and the project aligns with a range of national and state policies to provide energy security and reliability, including *Australia's Long Term Emissions Reduction Plan (2021)*, the *Australian Energy Market Operator's (AEMO) 2022 Integrated System Plan (ISP)*, the *NSW Climate Change Policy Framework (2016)*, *Net Zero Plan Stage 1: 2020 – 2030 (2020)* and *South East and Tablelands Regional Plan 2036*, and the *Goulburn Mulwaree Council Local Strategic Planning Statement*.

2.3 NSW Solar Guideline

The Department released the Large-Scale Solar Energy Guideline in December 2018 to provide the community, industry, and regulators with guidance the key planning considerations relevant to solar energy development in NSW.

The Guideline was revised in August 2022 following extensive consultation, to ensure the assessment of large-scale solar energy projects continues to be transparent, consistent and supported by the best available information. While the revised guideline does not strictly apply to this project as it was lodged prior to their release, the project is broadly consistent with the principles in the revised guideline.

The Guideline recognises that large-scale solar projects could help to reduce reliance on fossil fuels, thereby contributing to reduction in air pollution and greenhouse gas emissions, while also supporting regional NSW through job creation and investment in communities.

3 Statutory Context

3.1 State Significant Development

The project is classified as State significant development under section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This is because it triggers the criteria in Clause 20 of Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021*, as it is development for the purpose of electricity generating works with a capital investment value of more than \$30 million.

Consequently, the Minister for Planning and Public Spaces is the consent authority. However, under the Minister's delegation of 9 March 2022, the Director, Energy Assessments, may determine the development application as Goulburn Mulwaree Council (Council) did not object, there were less than 15 objections from the general public, and a political donations disclosure statement has not been made.

3.2 Permissibility

The site is zoned as RU1 Primary Production and the site access road is zoned RU2 Rural Landscape under the *Goulburn Mulwaree Local Environmental Plan 2009* (LEP).

The project is permissible because electricity generating works are permissible with consent on any land in a prescribed rural, industrial or special use zone, including RU1 and RU2 zones, under clause 2.36 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP).

3.3 Integrated and other approvals

Under section 4.41 of the EP&A Act, a number of other approvals are integrated into the SSD approval process, and therefore are not required to be separately obtained for the project. Under section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the project (e.g. approvals for any works under the *Roads Act 1993*).

The Department has consulted with the relevant government agencies responsible for the integrated and other approvals, considered their advice in its assessment of the project, and included suitable conditions in the recommended conditions of consent to address these matters (see **Appendix F**).

3.4 Mandatory Matters for Consideration

Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. The Department has considered all of these matters in its assessment of the project, as well as Terrain's consideration of environmental planning instruments in its EIS, as summarised in **Section 5** of this report. The Department has also considered relevant provisions of the environmental planning instruments in **Appendix G**.

4 Engagement

4.1 Department's engagement

The Department publicly exhibited the EIS from 21 September 2022 until 18 October 2022, advertised the exhibition in the *Goulburn Post* and notified landowners in proximity to the project site. The Department also consulted with Council and relevant government agencies throughout the assessment, and inspected the site and the surrounds on 18 May 2023.

4.2 Submissions and Submissions Report

During the exhibition of the EIS, the Department received seven public submissions (5 individual and 2 interest groups). Of the seven submissions, 2 were in support, 3 were objections and 2 provided comment. Advice was received from 13 government agencies, including Goulburn Mulwaree Council. Full copies of the agency advice and public submissions are attached in **Appendices B** and **C**.

Terrain provided a response to all matters raised in submissions on the project (see **Appendix D**) and also provided additional information during the Department's assessment (see **Appendix E**).

4.3 Key Issues – Community

Submissions made in support of the project highlighted its economic and environmental benefits.

The key issues raised in comments and objections included potential construction traffic impacts (noise, congestion, cumulative impacts, road safety and damage to local roads) and visual impacts. Other concerns included property values, biosecurity, impacts on fauna, and impacts of EMF (electromagnetic fields) on communications infrastructure.

4.4 Key Issues - Government agencies, Council and Utility Providers

Council did not object to the project, and government agencies provided comments on key aspects of the development, and the recommended conditions of consent. A summary of the key matters raised is provided in **Table 1**.

The Department's consideration of the matters raised is provided in **Section 5** of this report.

Table 1 | Summary of Agency Advice

Agency	Key Issues
Goulburn Mulwaree Council	<ul style="list-style-type: none">• Provided commentary and recommended conditions relating to Munro Road upgrades, road maintenance, draft Voluntary Planning Agreement and appropriate management and avoidance of the local heritage item the 'Ruins of Kyle'.
Transport for NSW	<ul style="list-style-type: none">• Provided recommended conditions regarding avoidance of right hand turns from the Hume Highway / Munro Road intersection and avoidance of the PM peak hour for project related heavy vehicles where practicable.
Water NSW	<ul style="list-style-type: none">• Provided commentary regarding the protection of the Sydney drinking water catchment during construction of the project.

NSW Rural Fire Service	<ul style="list-style-type: none"> • Adequacy of assessment against requirements of <i>Planning for Bushfire Assessment 2019</i>
DPE Water	<ul style="list-style-type: none"> • Project design requirements for works on waterfront land • Licencing requirements under the <i>Water Management Act 2000</i>
DPI Fisheries	<ul style="list-style-type: none"> • Provided commentary on ensuring creek crossing are appropriately designed to accommodate fish passage. • Ground cover retention, and erosion and sediment control requirements.
Heritage NSW	<ul style="list-style-type: none"> • Provided recommended conditions regarding additional test excavations and surveys to support the findings of Aboriginal Cultural Heritage Assessment Report (ACHAR).
Biodiversity and Conservation Division (BCD)	<ul style="list-style-type: none"> • Noted the avoidance of impacts through project refinements and supported this approach.
APA Group	<ul style="list-style-type: none"> • Requirements for development in proximity to the high-pressure pipelines traversing the site, including Safety Management Study and Electrical Interference and Hazard Studies
DPI Agriculture	<ul style="list-style-type: none"> • Management strategies to support livestock grazing in conjunction with solar farm operations
Crown Lands	<ul style="list-style-type: none"> • Approval and permit requirements to develop over Crown roads
FRNSW	<ul style="list-style-type: none"> • Recommended that a Fire Safety Study, Emergency Response Plan and an Emergency Services Information Package be prepared.

The Department of Regional NSW – Mining, Exploration & Geoscience (MEG), Essential Energy and the Australian Pipelines and Gas Association either raised no concerns or provided no comments.

5 Assessment

The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the key assessment issues, namely energy transition and land use compatibility.

The Department has also considered the full range of potential impacts associated with the project and has included a summary of the conclusions in **Section 5.3** of this report. The key documents that informed the Department's assessment are provided in **Appendices A to E**.

5.1 Energy Transition

The project aligns with a range of national and state policies (see **Section 2.2**), which identify the need to diversify the energy generation mix and reduce the carbon emissions intensity of the grid while providing energy security and reliability.

With a generating capacity of 152 MW, the solar farm would generate enough electricity to power about 56,000 homes. This is consistent with the *NSW Climate Change Policy Framework* of achieving net zero emissions by 2050. The inclusion of a battery (150 MW / 600 MWh) would enable the project to store solar energy for dispatch to the grid outside of daylight hours and/or during peak demand, increasing grid stability and energy security. Finally, the project is in an area with direct access to the transmission network with available capacity and abundant solar resources on land where solar development is permissible with consent under the Transport and Infrastructure SEPP.

5.2 Compatibility of Proposed Land Use

The site is located on land zoned as RU1 - Primary Production and RU2 – Rural Landscape, where solar farms are permitted with consent, and Council's strategic planning documents specifically promote renewable energy projects for the region, particularly where located to access the existing electricity network.

The site has ready access to the existing electricity network and surrounding lands are predominantly farmlands used for grazing, but also includes the Holcim, Lynwood and Gunlake quarries to the east and north of the site. There are relatively few sensitive receivers in surrounding areas, with 18 non-associated residences within 2 km of the site.

A Land and Soil Capability Assessment determined that the site was not highly productive agricultural land, ranging from Class 5 (moderate-low capability) to Class 7 (very low capability) under the Land and Soil Capability Mapping in NSW. The project would also not disturb any Biophysical Strategic Agricultural Land (BSAL).

Grazing activity may continue on the site, coexisting with the proposed solar farm so as to not significantly reduce the overall agricultural use of the land, nor productivity of the region. The Department is also satisfied that the site could be returned to agricultural uses in the future.

The project would contribute to a more diverse local industry, supporting the local economy and community and considers that the proposed solar farm represents an effective and compatible use of land within the region, and that the site is suitable to accommodate the development.

5.3 Other issues

Findings	Recommendations
<p data-bbox="159 368 320 400">Biodiversity</p> <ul data-bbox="159 437 1487 544" style="list-style-type: none">• The site comprises farmland historically cleared for sheep grazing and is dominated by exotic pasture. Some remnant woodland is within the site, primarily located adjacent to watercourses. The development has been designed to largely avoid these areas, with only access roads impacting upon some locations. <p data-bbox="159 555 479 587">Ecological Communities</p> <ul data-bbox="159 598 1547 1308" style="list-style-type: none">• Exotic grassland and derived native grassland (in poor condition with integrity scores that do not trigger the Biodiversity Offset scheme) represent 97% (322.83 ha) of the vegetation disturbance footprint. The project is predicted to impact upon 7.89 ha of native vegetation in the following three plant community types:<ul data-bbox="210 719 1547 1023" style="list-style-type: none">○ 1.33 ha of Brittle Gum – Broad-leaved Peppermint – Red Stringybark Open Forest (PCT 351) in dense and derived condition;○ 5.63 ha of Box Gum Woodland (PCT 1330) in a range of conditions, namely moderate (2.46 ha), moderate-poor (1.2 ha), regeneration (0.45 ha) and plantings (1.52 ha). This is a threatened ecological community (TEC) under the BC Act, however does not meet the EPBC Act thresholds; and○ 0.94 ha of River Tussock – Tall Sedge – Kangaroo Grass Moist Grasslands (PCT 1110) in moderate condition. This is a TEC under the EPBC Act, which is Natural Temperate Grassland Critically Endangered Ecological Community (CEEC).• BCD advised that although the residual impacts of the project would result in the loss of 3.65 ha of moderate quality Box Gum Woodland, which is a Serious and Irreversible Impact entity (SAIL), the project has minimised impacts to better quality and more intact Box Gum Woodland, natural temperate grasslands and biodiversity values across the subject land. BCD also noted that the project has been designed to avoid the areas of highest ecological value for Box Gum Woodland as well as areas that are habitat for threatened species.• The residual impact to the three plant community types would generate 138 Ecosystem Credits that would be offset in accordance with the NSW Biodiversity Offset Scheme.	<ul data-bbox="1585 437 2074 1150" style="list-style-type: none">• Avoid the disturbance of the high value native vegetation and fauna habitat within the development footprint with the implementation of exclusion zones;• Secure the applicable biodiversity offset credits in accordance with the Biodiversity Offsets Scheme prior to commencing the development; and• Prepare and implement a Biodiversity Management Plan in consultation with BCD, including measures to minimise clearing, avoid unnecessary disturbance of vegetation located within the site and maintaining and improving the condition and extent of PCT 1330 and PCT 1110 and surrounding the project site.

Threatened Species

- The impact upon vegetation communities and the loss of 17 isolated scattered trees, 0.17 ha of rock outcrop and exotic grassland is potential habitat for threatened species including the Pink-tailed Legless Lizard, the Striped Legless Lizard, Glossy Black Cockatoo, Masked Powerful Owl and the Barking Owl.
- The project includes retention of buffers to potential Pink Tailed Worm Lizard and Striped Legless Lizard habitat, buffers to watercourses and Natural Temperate Grassland.
- The residual impact to threatened species would be offset in accordance with the NSW Biodiversity Offset Scheme.
- The project will result in the generation of 291 Species Credits as calculated by the BAM credit calculator. Terrain will satisfy the biodiversity credit requirements using offset mechanisms allowed by the NSW Biodiversity Offsets Scheme.
- A referral to the Federal Government was made via the DAWE Business Portal for the Pink-tailed Legless Lizard, Striped Legless Lizard, the Koala and the Natural Temperate Grasslands CEEC. The results, dated 27 June 2022, for this referral are that the project does not constitute a controlled action.
- The Department considers that Terrain has designed the project to minimise impacts to biodiversity by avoiding areas of the highest ecological value and habitat to threatened species. The Department considers the residual impact can be appropriately offset through the NSW Biodiversity Offset Scheme.
- Further the Department's conditions of consent would also ensure the remaining biodiversity on site is appropriately managed and maintained.

Transport

- The project has the potential to impact local and State roads, primarily during construction. The construction heavy vehicle route is from Port Botany via the State road network then from the Hume Highway onto Munro Road, which provides direct access to the site.
- Construction traffic would occur over 18-months generating up to 80 light vehicle, 25 shuttle bus, and 14 heavy vehicle movements per day, and a total of 3 movements of heavy vehicles requiring escort.
- Restrict the number and size of vehicles during construction to peak volumes identified in this report.
- Restrict access to the designated transport route.

Findings

- To accommodate construction related traffic on Munro Road, Terrain would widen an 80 m section. Other improvements to Munro Road would include centre and edge line marking, double barrier lines where sight distances are not achieved and installation of guideposts at 75 m intervals. Council is the road authority for Munro Road and does not object to the upgrade.
- TfNSW advised that construction heavy vehicles must only be permitted to turn left in and left out of Munro Road from the Hume Highway to ensure project construction vehicles do not come into conflict with through traffic on the Hume Highway. Light vehicles must only turn left on to the Hume Highway from Munro Road and must not make a U-turn before the Marulan South (Jerrara Road) interchange. In addition, heavy vehicles requiring escort may turn left or right into Munro Road from the Hume Highway, as they will be under escort. The Department agrees and has recommended conditions of consent that mandate this requirement.
- TfNSW and Council have recommended a range of conditions including the preparation of a Traffic Management Plan (TMP), which has been incorporated into the recommended conditions of consent.
- The Department has also recommended conditions requiring Terrain to undertake pre-construction and post construction dilapidation surveys of Munro Road, and to repair any damage as a result of construction traffic.
- Noting the above, and with the implementation of a road upgrades and the TMP, the Department, considers that the project would not result in significant additional impacts on the road network capacity, efficiency or safety.

Recommendations

- Ensure the length of vehicles (excluding heavy vehicles requiring escort) does not exceed 26 m.
- Require a Traffic Management Plan (TMP) to be prepared in consultation with Council and TfNSW.
- Require the applicant to undertake the relevant road upgrades prior to commencing construction.

Heritage

Aboriginal cultural heritage

- The project design includes several exclusion zones which would avoid impacts to areas that include Aboriginal cultural heritage, including a stone quarry. Nevertheless there are residual impacts.
 - Site surveys undertaken in consultation with Registered Aboriginal Parties (RAPs) identified nine Aboriginal heritage artefact sites, which would be impacted by the project, consisting of low-density artefact scatters and isolated finds.
 - Aboriginal objects located within the disturbance areas will be salvaged in consultation with RAPs. Salvaged Aboriginal objects would be reburied within the project site.
 - Terrain has committed to preparing an unexpected finds procedure and should any Aboriginal artefacts or skeletal material be identified during construction, all work would cease and the procedure would be implemented.
- Ensure the development does not cause any direct or indirect impacts on any items located within exclusion zones or outside the approved development footprint.
 - Undertake additional heritage surveys prior to construction commencing.
 - Salvage and relocate Aboriginal items in consultation with RAPs.

Findings

- Heritage NSW were concerned that minor additional survey work was required in certain areas due to the uncertainty in the construction phase, where disturbance of the ground may occur outside of locations detailed within existing surveys. While the Department considers this risk low, it has recommended a condition of consent requiring additional heritage survey work in consultation with Heritage NSW and RAPs to ensure impacts to Aboriginal Cultural Heritage are appropriately understood during the construction phase.
- The Department considers the project has been designed to avoid some areas of high Aboriginal Cultural value, while areas that are not avoided would be salvaged in accordance with the input from the RAPs. Accordingly the Department considers that impacts to Aboriginal Cultural Heritage are low and would be appropriately managed.

Historic heritage

- There is one locally listed historic heritage item within the site, the Ruins of Kyle, and one located adjacent to the site - Lockyersleigh Homestead.
- There would be no physical impacts to the Lockyersleigh Homestead due to separation distance (exceeding 1.2 km), and visual impacts would be negligible noting the extensive existing vegetation surrounding this item.
- Terrain proposes to implement an exclusion zone over the Ruins of Kyle and its curtilage to protect it against any physical construction impacts. In addition, the Department has recommended conditions requiring a further exclusion zone to the north and east of the ruins, to preserve its historic connection to the north with Lockyersleigh Homestead.
- With these measures, the Department and Heritage NSW consider that the project is unlikely to result in significant impacts on the heritage values of the locality.

Visual

- There are 18 non-associated residential receivers within 2 km of the site. The closest receiver (R66) is approximately 500 m west of the proposed site access, and 800 m south of the solar farm infrastructure.
- Visual impacts on all receivers within 2 km of the site would be nil to low, due to separation distance and intervening topography and mature vegetation.

Recommendations

- Cease works and notify the NSW Police and HeritageNSW if human remains are identified over the life of the project.
- Prepare and implement a Heritage Management Plan, including procedures for unexpected finds, in consultation with RAPs.

- Implement landscape screening.
- Minimise visual impacts by selection of less obtrusive colours and reflective surfaces.

Findings

- Terrain has committed to establishing a series of landscape buffers extending across the eastern and western portions of the site to further reduce visibility of the project.
- The project would include limited permanent (security) lighting, which would not spill into neighbouring residences and would have no visual impacts on receivers.
- There is potential for a low glare impact for receiver R43. However, this impact would only have potential to occur in spring and summer for less than 20 minutes per day and would likely be reduced by existing intervening vegetation.
- Noting the above, the Department considers the visual impacts of the project are acceptable, and would be further reduced over time with the establishment of the proposed landscape buffers.

Recommendations

- Security lighting is directed away from surrounding receivers.

Noise and Vibration

- Construction noise would be predominantly below the 'noise affected' criterion under the NSW *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) for most receivers. Some exceedances between 1 dB(A) and 6 dB(A) are predicted at 13 of the 74 receivers assessed. However, these exceedances represent a 'worst case scenario', assuming the loudest equipment operating simultaneously, at maximum capacity, and in a location within the site nearest to receivers, which would be very unlikely to occur in practice.
- Terrain has committed to implementing construction noise mitigation measures in accordance with the ICNG, including use of lower noise plant and equipment, use of broad-band reversing alarms, reduced throttle settings on machinery, turning off equipment when not in use, and regular maintenance of machinery. Construction noise would also be limited to standard daytime hours.
- Daytime, evening and night time operational noise levels (including both centralised and distributed battery options) are predicted to comply with the project noise trigger levels under the NSW *Noise Policy for Industry* (EPA, 2017).
- Traffic noise is predicted to comply with the criteria in the *NSW Road Noise Policy* (DECCW, 2011) for all receivers closest to the transport route.
- The Department is satisfied that the project's noise emissions can be appropriately managed.
- Minimise the noise generated by any construction, upgrading or reducing activities on site in accordance with best practice requirements outlined in the ICNG.
- Comply with the project noise trigger levels as derived from the NSW *Noise Policy for Industry* (EPA, 2017) at any non-associated residence and take all reasonable and feasible steps to minimise operational noise.
- Restrict construction hours to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm

Findings

Recommendations

Water

- The site is traversed by three fourth-order ephemeral creeks and their tributaries, all of which flow to the Wollondilly River to the north and west. The Project has implemented exclusions zones around these watercourses.
 - The site is located within the Sydney drinking water catchment. The EIS includes MUSIC modelling of the impact of the development on the drinking water catchment. The modelling results demonstrate that post development pollutant loads are less than predevelopment pollutant loads and the project is compliant with the Neutral or Beneficial Effect (NorBE) requirements in accordance with requirement *under State Environmental Planning Policy (Biodiversity and Conservation) 2021*.
 - Council comments regarding potential increased stormwater runoff from the site were addressed in the Submissions Report, which demonstrated post development runoff would match pre-development levels.
 - Noting the above, the Department considers there would be no water quality impacts resulting from the project.
- Minimise any soil erosion in accordance with the *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual and ensure the solar project is constructed and maintained to avoid causing erosion on site.
 - Ensure all works are undertaken in accordance with *Guidelines for Controlled Activities on Waterfront Land* (NRAR, 2018).

Hazards and Risks

Battery Storage

- The project includes battery storage, which would be either distributed amongst the solar arrays or centralised and co-located with the project substation.
- The Preliminary Hazard Analysis (PHA) found that subject to mitigation measures, including minimum separation distance between BESS containers and use of non-combustible materials, the project risks at the site boundary did not exceed acceptable criteria, and propagation risks within the site were acceptable.

Bushfire

- The project would satisfy the requirements of RFS's *Planning for Bushfire Protection 2019* including provision of asset protection zones and defensible space, access and services for first responders, and ongoing management of fuel loads.

- Ensure that the development complies with the relevant requirements in the RFS's *Planning for Bushfire Protection 2019* and *Standards for Asset Protection Zones*.
- Ensure that there is defensible space and that the project is suitably equipped to respond to fires including water supply tank and appropriate connectors.

Findings

- Terrain Solar would also be required to develop an Emergency Plan prior to the commencement of any project commissioning.

Electromagnetic fields (EMF)

- EMF risks are negligible given the distance to sensitive receivers and all predicted levels are well below the relevant *International Commission on Non-Ionizing Radiation Protection (ICNIRP)* EMF criteria for general public exposure to high voltage power lines and other electrical infrastructure.

High-pressure pipeline

- An underground high-pressure gas pipeline running east-west through the site will be protected by a development exclusion zone, and Terrain has committed to developing a Safety Management Study through detailed design in accordance with advice received by APA Group for the project.

Recommendations

- Prepare an Emergency Plan for the project.

Social and Economic

- In addition to its contribution to the reduction in greenhouse gases and achieving NSW's energy transition, the project would generate direct and indirect benefits to the local community, including:
 - up to 300 construction workers during the 12 month peak construction period;
 - expenditure on accommodation and business in the local economy by workers who would reside in the area;
 - the procurement of goods and services by construction contractors; and
 - capital investment of approximately \$398 million.
- Terrain has also reached in-principle agreement with Council to enter into a VPA for a total of payment of \$1.7 million throughout the life of the project.
- Noting Council's preference for utilisation of the local workforce, Terrain has committed to developing an Accommodation and Employment Strategy prioritising local workers, which Terrain estimates could comprise up to 50% of the construction workforce requirements.
- Given the above, the Department considered the project would have an overall positive social and economic impact.
- Formalise planning agreement with Council.
- Prepare an Accommodation and Employment Strategy for the project in consultation with Council, prioritising the employment of local workers.

Findings

Recommendations

Subdivision

- Terrain has sought approval to subdivide the site (Lot 55 DP 1141136) to create a utility allotment for the proposed switching station, with the remaining portion of the land becoming a residual lot.
- The utility lot would be approximately 4 ha and would be located in one of two locations; either north-west of the site adjacent to proposed transmission connection or adjacent to the proposed project substation.
- The proposed utility lot would be below the minimum lot size of 100 ha and prohibited under a strict interpretation of the LEP. Notwithstanding, under section 4.38(3) of the EP&A Act, development consent for the project as a whole can be granted despite the subdivision component of the application being prohibited by the LEP.
- The Department considers that the subdivision should be approved as it:
 - will facilitate the dedication of the switching station to the electricity authority should it be required;
 - would not result in any additional dwelling entitlements on the subdivided lots; and
 - is consistent with the key objectives of the RU1 zone as it would encourage diversity and primary industry enterprises and minimise conflict between land uses.
- Subdivide the lot in accordance with the requirements of the EP&A Act, EP&A Regulation and the Conveyancing Act 1919 (NSW).

6 Evaluation

The Department has assessed the development application, EIS, Submissions Report and additional information, along with agency advice. The Department has also considered the objectives and relevant considerations under section 4.15 of the EP&A Act.

The project is permissible with consent in accordance with the Transport and Infrastructure SEPP. It is located on agricultural land, most of which has been historically cleared and modified for sheep grazing. The project has been designed to avoid remnant woodland primarily located adjacent to watercourses which include areas of high ecological and archaeological significance.

The projects impacts on traffic safety, road performance, and amenity have been assessed as low and the Department considers that these impacts can be managed through the recommended conditions of consent ensuring any residual impacts would be minor.

Furthermore, Terrain has committed to a suite of design measures and controls, including on-going heritage and biodiversity preservation and management measures. To capture Terrain's commitments, the Department has recommended a number of management plans be implemented during the life of the project, and has recommended conditions providing for additional exclusions zones to preserve the heritage significance of the locally listed Ruins of Kyle.

The project would provide flow-on benefits to the local community, including up to 300 construction jobs and a capital investment of \$398 million. A Voluntary Planning Agreement involving payments to Council up to approximately \$1.7 million over the life of the project is also proposed.

Given the distance of the project from other approved and proposed major projects in the region, there would be negligible cumulative impacts, including minimal cumulative impact on local roads along the project's transport route.

On balance, the Department considers the site to be appropriate for a solar farm, as it has ready access to major electricity infrastructure and aligns with the objectives of the South East and Tablelands Regional Plan 2036.

Finally, the project would contribute 152 MW of renewable energy to the National Electricity Market as well as 150 MW / 600 MWh of energy storage and firming capacity. The project would generate enough electricity to power about 56,000 homes and is consistent with the Commonwealth's Renewable Energy Target and NSW's *Climate Change Policy Framework* and the *Net Zero Plan Stage 1: 2020-2030*.

Accordingly, the Department considers that the benefits of the project outweigh its residual costs and that the project is in the public interest and is approvable, subject to conditions.

7 Recommendation

It is recommended that the Director, Energy Assessments, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the application
- **agrees** with the key reasons for approval listed in the notice of decision
- **grants consent** for the application in respect of Marulan Solar Farm (SSD-13137914), subject to the conditions in the attached development consent
- **signs** the attached development consent and recommended conditions of consent (see attachment).

Recommended by:



8/8/2023

Lauren Clear
Senior Environmental Assessment Officer
Energy and Resource Assessments

Recommended by:



8/8/2023

Carl Dumbleton
Team Leader
Energy and Resource Assessments

8 Determination

The recommendation is **Adopted / Not adopted** by:



16/8/2023

Iwan Davies
Director
Energy Assessments

Appendices

Appendix A – Environmental Impact Statement

Appendix B – Submissions

Appendix C – Agency Advice

Appendix D – Submissions Report

Appendix E – Additional Information

Appendix F – Recommended Development Consent

Appendices A to F available at: <https://www.planningportal.nsw.gov.au/major-projects/projects/marulan-solar-farm>

Appendix G – Statutory Considerations

In line with the requirements of section 4.15 of the EP&A Act, the Department’s assessment of the project has given detailed consideration to a number of statutory requirements as summarised in Table G1.

Table G1 | Statutory Considerations

Summary
Objects of the EP&A Act
<p>The objects of most relevance to the Minister’s decision on whether to approve the project are found in section 1.3(a), (b), (c), (e) and (f) of the EP&A Act.</p> <p>The Department considers the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 1.3(c)), particularly as the project:</p> <ul style="list-style-type: none">• is a permissible land use on the subject land;• is located in a logical location for efficient solar energy development;• is able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard;• would contribute to a more diverse local industry, thereby supporting the local economy and community;• would not fragment or alienate resource lands in the LGA; and• is consistent with the goals of NSW’s <i>Climate Change Policy Framework</i> and <i>Net Zero Plan Stage 1: 2020 – 2030</i> and would assist in meeting Australia’s renewable energy targets whilst reducing greenhouse gas emissions. <p>The Department has considered the encouragement of ESD (Object 1.3 (b)) in its assessment of the project. This assessment integrates all significant socioeconomic and environmental</p>

considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences.

In addition, the Department considers that appropriately designed SSD solar facility development, in itself, is consistent with many of the principles of ESD. Terrain has also considered the project against the principles of ESD. Following its consideration, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD.

Consideration of environmental protection (Object 1.3(e)) is provided in **Section 5** of this report. Following its consideration, the Department considers that the project could be undertaken in a manner that would at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts could be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits.

Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is also provided in **Section 5** of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality, and any residual impacts can be managed and/or mitigated by imposing appropriate conditions.

State Significant development

Under section 4.36 of the EP&A Act, the project is considered a State Significant Development. The Minister for Planning is the consent authority for the development. Under the Minister's delegation of 9 March 2022, the Director, Energy Assessments, may determine the project.

Environmental Planning Instruments (EPIs)

The Goulburn Mulwaree LEP applies and is discussed in **Sections 3.2** and **5.2** of this report, particularly regarding permissibility and land use zoning. As discussed in **Section 5.2** of this report, solar farms are permitted with consent within the relevant land use zoning. In addition, Council's strategic planning documents specifically promote renewable energy projects for the region, particularly where located to access the existing electricity network.

Terrain Solar completed a preliminary risk screening in accordance with the *State Environmental Planning Policy (Resilience and Hazards) 2021* (Hazards SEPP) and confirmed the project was not categorised as potentially hazardous or potentially offensive development. The Department has also considered the remediated land provisions of the Hazards SEPP.

The Department has also reviewed the proposal against the Transport and Infrastructure SEPP. The Department considers that the proposal is located so as to avoid land use conflicts with existing and approved uses of land (see **Section 5.2**).
