Sapphire Solar Farm

State Significant Development

(SSD 8643)

August 2018

Cover photo

Source: https://www.sapphirewindfarm.com.au/sapphire-solar/

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Executive Summary

Sapphire Solar Farm Pty Ltd (the Applicant) proposes to develop a new 180 megawatt (MW) solar farm and 50 MW/100 MW-hour (MWh) battery storage facility within the Northern Tablelands, about half way between Glen Innes and Inverell. The solar farm would be co-located with the approved Sapphire Wind Farm.

Engagement

The Department publicly exhibited the Environmental Impact Statement for the project and received advice from eight Government agencies, and one submission from the general public objecting to the project.

Inverell Shire Council supports the project, none of the other Government agencies objected to the project and no submissions were received from surrounding residents.

During the assessment process, the Applicant revised the project layout to further reduce impacts on native vegetation, Biophysical Strategic Agricultural Land (BSAL) and watercourses, in consultation with the Department and relevant Government agencies.

Assessment

The key assessment issues for this project are potential impacts to agricultural land, biodiversity, surface water resources and traffic.

While the Applicant has designed the project to minimise impacts on agricultural land, a portion of the proposed development footprint would be located on BSAL. However, the Department considers that the project would not significantly reduce the overall agricultural productivity of the region and is satisfied that the site could be returned to agricultural uses in the future.

The project has been designed to largely avoid impacts on vegetation in the locality and all unavoidable impacts would be offset in accordance with Government policy. The layout of the solar farm has also been designed to minimise impacts on watercourses on the site.

The potential traffic impacts would largely be short-term, relatively minor in nature and can be managed in accordance with strict conditions for requiring adherence to specific construction hours, maintenance of local roads and implementation of a comprehensive Traffic Management Plan.

Summary

Overall, the Department considers the site to be appropriate for the project as it has good solar resources, has been co-located with the Sapphire Wind Farm, and is close to the existing electricity network.

The project is consistent with both the Commonwealth's *Renewable Energy Target* and NSW's *Climate Change Policy Framework* as it would contribute 180 MW of renewable energy to the National Electricity Market, including up to 100 MWh of dispatchable generation.

The Department considers that the project would result in benefits to the State of NSW and the local community, and is therefore in the public interest.

Contents

1. Introduction

1.1 Preamble

Sapphire Solar Farm Pty Ltd (the Applicant) proposes to develop a new 180 megawatt (MW) solar farm and 50 MW/100 MW-hour (MWh) battery storage facility (the project) in the Northern Tablelands of NSW, approximately 18 kilometres (km) west of Glen Innes, within Inverell local government area (see **Figure 1**).

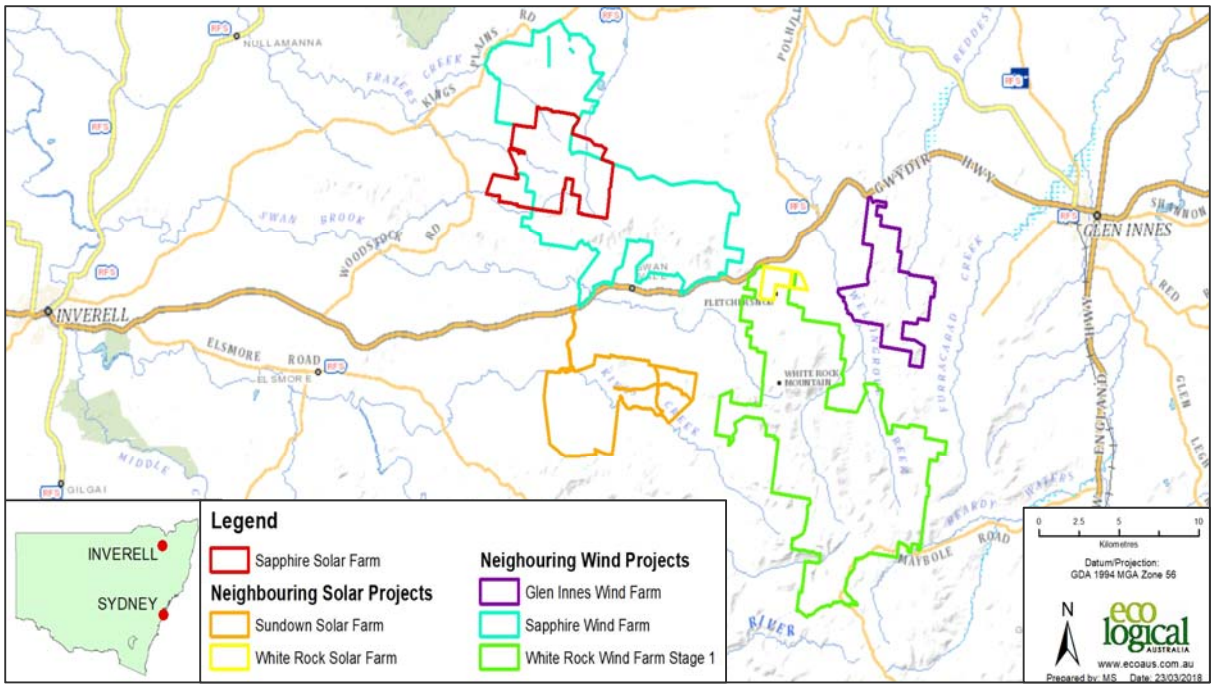

Figure 1 | Regional Context Map

1.2 Project setting

The project is located on a 2,423 hectare (ha) site that is situated within and adjacent to the Sapphire Wind Farm. Wind turbines and ancillary infrastructure are located throughout the site, including a substation and access roads. A 330 kilovolt (kV) TransGrid transmission line crosses the centre of the solar farm in a north-south direction and connects with the existing Sapphire Wind Farm substation (see **Figure 2**).

The site and surrounding area lies within the upper reaches of the Macintyre River Catchment, is undulating in nature and has historically been cleared for grazing and cropping purposes. There are a number of other renewable energy projects in the locality in addition to the Sapphire Wind Farm, including the approved Glen Innes Wind Farm, White Rock Wind Farm and Solar Farm and the proposed Sundown Solar Farm.

The proposed development footprint within the site covers 458.5 ha and is irregular in shape as it was designed to largely avoid remnant native vegetation and watercourses, and to align with Sapphire Wind Farm infrastructure. Twelve residences are located within 2 km of the site boundary, including seven that are not associated with the project. Of these seven, three are located within 2 km of the proposed development footprint (i.e. R015, R017, R019) (see Figure 3).

2. Project

The project involves the construction of a new solar farm with a generating capacity of approximately 180 megawatts (MW) and a battery storage facility with a capacity of 50 MW/100 MW hours. It also involves the upgrading and decommissioning of infrastructure and equipment in the future. While the capacity of the project may increase over time as technology improves, the footprint of the development would not increase.

The key components of the project are summarised in **Table 1**, depicted in **Figure 2**, and described in the Environmental Impact Statement (EIS) (see **Appendix B**) and additional information provided during the Department's assessment of the project (see **Appendix C**).

Table 1 | Main Components of the Project

Aspect	Description
Project summary	The project includes: • approximately 660,000 solar panels and approximately 50 inverter stations (up to 5 m high); • a lithium-ion battery storage facility within housing containers (50MW/100MWhr capacity); • above and/or below ground cabling connection between the inverter stations and the 330 kV Sapphire Wind Farm substation; • an operation and maintenance building, car park, access tracks, fire breaks and security fencing; and • subdivision of the project site to facilitate long term leasing of the land.
Project area	2,423 ha (with a 458.5 ha development footprint)
Access route	Over-dimensional and heavy vehicles would access the site via the Gwydir Highway, Waterloo Road and the Western Feeder Road.
Site entry and road upgrades	• The site would be accessed utilising existing access points for Sapphire Wind Farm along Waterloo Road and the Western Feeder Road. • No additional road upgrades are required as over-dimensional and heavy vehicles would be restricted to the upgraded route for the Sapphire Wind Farm.
Operational life	• The expected operational life of the infrastructure is approximately 25 years. However, the project may involve infrastructure upgrades that could extend the operational life. • The project also includes decommissioning at the end of the project life, which would involve removing all above ground infrastructure.
Construction	• The construction period would last for up to 18 months. • Construction hours would be limited to Monday to Friday 7am to 6pm, and Saturday 8am to 1pm.
Hours of operation	• The project would operate during daylight hours. • Daily operations and maintenance would be undertaken Monday to Friday 7am to 6 pm.
Employment	Up to 200 full time equivalent construction jobs, and 10 full time equivalent operational jobs.
Capital investment value	$280 million

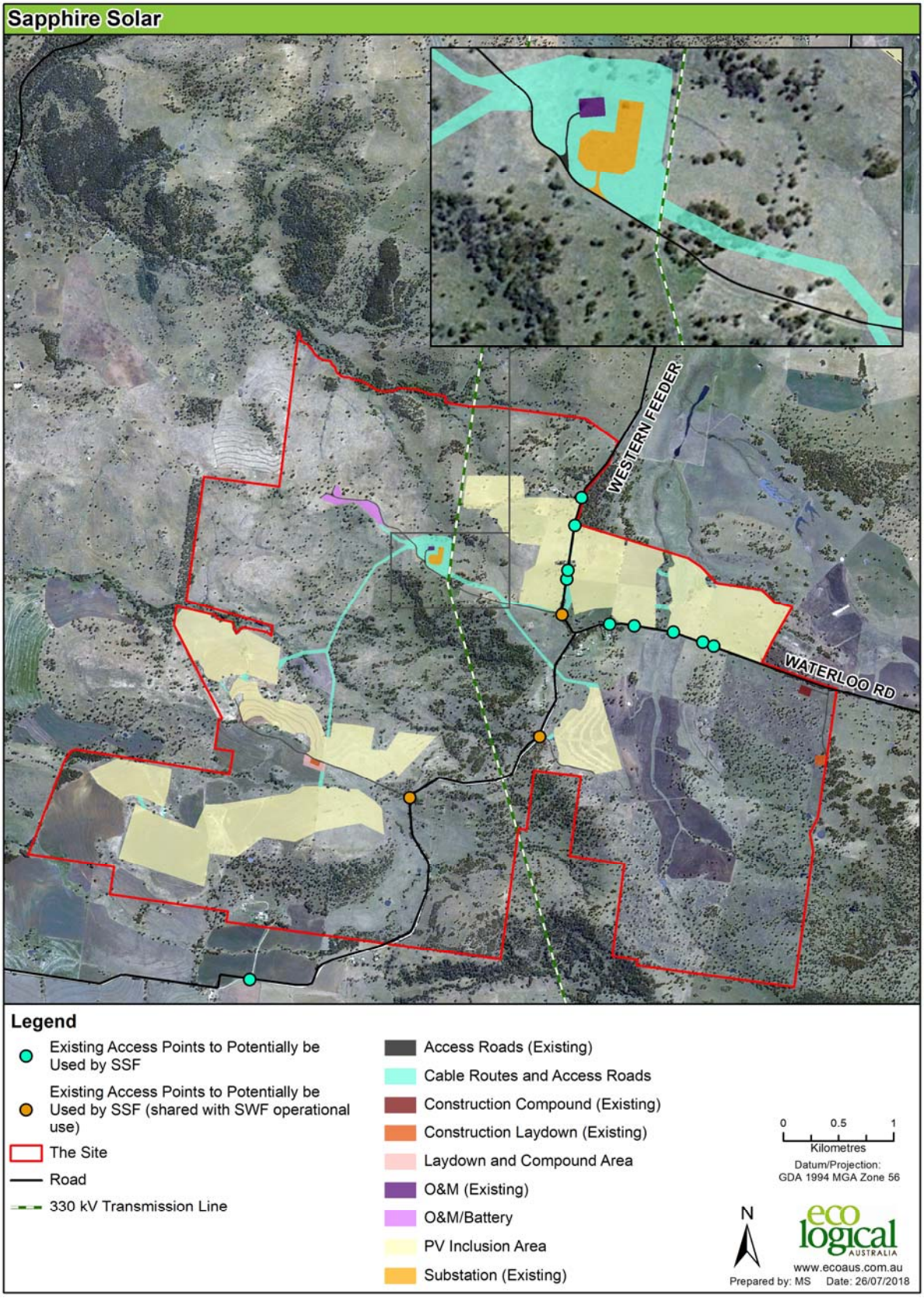

Figure 2 | Project Layout

3. Strategic Context

3.1 Sapphire Wind Farm

The project would be located largely within the Sapphire Wind Farm site (see **Figure 1**). The Sapphire Wind Farm was approved in 2013, and construction is expected to be complete by late 2018. To date, 26 turbines have been installed, 26 are partially installed, the substation has been constructed, and all cabling has been installed.

Sapphire Solar Farm would connect to the grid via the Sapphire Wind Farm substation. The battery storage facility proposed as part of the solar farm project would also enable electricity generated by the Sapphire Wind Farm to be stored for dispatch to the National Energy Market.

3.2 Renewable Energy

In 2017, NSW derived approximately 15.8% of its energy from renewable sources. The rest was derived from fossil fuels, including 79.3% from coal and 4.8% from gas. However, there are currently no plans for the development of new coal power stations in NSW, and the development of renewable energy sources, like wind and solar farms, is experiencing rapid growth.

This is highlighted in the 2017 *Independent Review into the Future Security of the National Electricity Market* (the Finkel Review), which outlines a strategic approach to ensuring an orderly transition from traditional coal and gas fired power generation to generation with lower emissions. It notes that Australia is heading towards zero emissions in the second half of the century.

The *United Nations Framework Convention on Climate Change* has adopted the Paris Agreement, which aims to limit global warming to well below 2°C, with an aspirational goal of 1.5°C. Australia's contribution towards this target is a commitment to reduce greenhouse gas emissions by 26% to 28% below 2005 levels by 2030.

One of the key initiatives to deliver on this commitment is the Commonwealth Government's *Renewable Energy Target*. Under this target, more than 20% of Australia's electricity would come from renewable energy by 2020. It is estimated that an additional 5,400 MW of new renewable energy capacity will need to be built by 2020 to achieve the *Renewable Energy Target*.

The *NSW Climate Change Policy Framework*, released in November 2016, sets an aspirational objective for NSW to achieve net zero emissions by 2050. The NSW Government also has a *Renewable Energy Action Plan*, which promotes the development of renewable energy in NSW.

NSW is currently leading Australia in large-scale solar, with five major operational projects, including the largest solar farm in Australia.

In March 2018, the NSW Government identified 10 potential Energy Zones across three broad regional areas, including the New England, Central West and South West regions of NSW. The project would be located within the proposed New England Energy Zone, which currently includes the under- construction Sapphire Wind Farm, the approved but not constructed Glen Innes Wind Farm, and the operating White Rock Wind Farm which is co-located with the under-construction White Rock Solar Farm (20 MW).

With a capacity of 180 MW, the project would generate enough electricity to power up to 66,000 homes, and is therefore consistent with both the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*.

4. Statutory Context

4.1 State Significant Development

The project is classified as State Significant Development under Section 4.38 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 (SEPP) (State and Regional Development) 2011*, as it is development for the purpose of electricity generating works with a capital investment value (CIV) of more than $30 million.

Consequently, the Minister for Planning is the consent authority for the development. However, under the Minister's delegation of 11 October 2017, the Executive Director, Resource Assessments and Business Systems, may determine the development application as Council did not object, there were less than 25 objections from the general public and a political donations disclosure statement has not been made.

4.2 Permissibility

The site is located wholly within land zoned RU1 Primary Production under the *Inverell Local Environment Plan (LEP) 2012*, the provisions of which are discussed in **section 6.1**.

Under the *SEPP (Infrastructure) 2007* (Infrastructure SEPP) electricity generating works are permissible on any land in a prescribed rural, industrial or special use zone. The project is permissible under the Infrastructure SEPP as it is located wholly within land zoned RU1, which is a prescribed rural zone. In accordance with the Infrastructure SEPP, the Department has given written notice of the project to TransGrid as the electricity supply authority for the area.

4.3 Integrated and Other NSW Approvals

Under Section 4.41 of the EP&A Act, a number of other approvals are integrated into the State Significant Development approval process, and consequently are not required to be separately obtained for the proposal.

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 proposal (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 G**).

4.4 Commonwealth Approvals

On 5 January 2018, a delegate for the Commonwealth Minister for the Environment and Energy determined the project (EPBC 2017/8121) to be a 'controlled action' in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely significant impacts to listed threatened species and communities (Sections 18 and 18A).

The assessment process under the EP&A Act has been accredited under a bilateral agreement with the Commonwealth Government. Accordingly, the NSW Government has undertaken the assessment on behalf of the Commonwealth and has assessed matters of national environmental significance (MNES).

The Department consulted with the Department of Environment and Energy (DoEE) in accordance with the bilateral agreement and provided draft copies of this assessment report and the recommended conditions of consent to the DoEE for comment.

The Department's assessment of the potential impacts of the project on controlling provisions under the EPBC Act relating to biodiversity is provided in **section 6.2**. Further information on the matters that the Commonwealth Minister must consider under the EPBC Act is provided in **Appendix H**.

4.5 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. These matters could be summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, and the EP&A Regulations;
- the environmental, social and economic impacts of the development;
- the suitability of the site;
- any submissions; and
- the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).

The Department has considered all of these matters in its assessment of the project, as well as the Applicant's consideration of environmental planning instruments in its EIS, as summarised in **section 6** of this report. The Department has also given consideration to the relevant provisions of the environmental planning instruments in **Appendix D**.

5. Engagement

5.1 Department's Engagement

The Department publicly exhibited the EIS from 29 January 2018 until 28 February 2018 (30 days), advertised the exhibition in the Sydney Morning Herald, Daily Telegraph, The Australian, Glen Innes Examiner and Inverell Times.

The Department inspected the site on 11 August 2017 and has consulted with the relevant Government agencies throughout the assessment process.

5.2 Submissions and Response to Submissions

During the exhibition period of the EIS, the Department received a total of nine submissions, including:

- eight from government agencies (all comments); and
- one from the general public (objecting).

None of the government agencies objected to the project and no submissions were received from surrounding residents.

Full copies of the submissions are attached in **Appendix E**. The Applicant provided a response to all matters raised in submissions on the project (see **Appendix F**).

The Applicant has also provided additional information during the Department's assessment (see **Appendix C**). The additional information responded to agency requests, and included a revised development footprint, which has reduced the amount of high quality vegetation required to be cleared.

5.3 Key Issues – Government Agencies

Office of Environment and Heritage (OEH)

OEH confirmed that the Applicant correctly applied the NSW *Framework for Biodiversity Assessment (*FBA) and adequately addressed the assessment requirements relating to MNES. OEH also requested additional information about vegetation mapping within the proposed cable routes and the location of threatened flora species. These matters have been addressed through the RTS and additional information provided during the Department's assessment (see **section 6.2**).

Roads and Maritime Services (RMS)

RMS raised concerns about the level of detail provided in the assessment, and recommended that all heavy vehicles access the site via Gwydir Highway and Waterloo Road. The Applicant provided additional information in the RTS and revised its heavy vehicle haulage route accordingly. The Department has recommended conditions of consent to address the requirements of RMS.

Department of Industry – Lands and Water (DoI L&W)

DoI L&W raised concerns about the potential impacts of the project on watercourses and recommended that the Applicant revise the project footprint to include suitable buffers. The Applicant revised its development footprint to incorporate the recommended buffers.

The agency also emphasised the need to minimise potential impacts on BSAL and requested appropriate rehabilitation objectives and strategies following decommissioning. These issues have been addressed and are discussed in **sections 6.3** and **6.5**.

Inverell Shire Council

Council supports the development of the project, however requested the implementation of appropriate mitigation measures including the preparation of a bushfire risk assessment following determination, undertaking road dilapidation surveys and repairing any roads damaged by the project. These measures have been incorporated into the recommended conditions of consent.

Rural Fire Service (RFS)

RFS requested more information to determine the specific bush fire mitigation measures for the project, including asset protection zones (APZs). The Applicant revised the development footprint to incorporate APZs, and the Department has recommended conditions requiring the Applicant to implement all appropriate mitigation measures as required by the relevant guidelines (see **section 6.5**).

Division of Resources and Geoscience (DRG)

DRG noted that mining and exploration land uses were adequately addressed in the EIS, and that the Applicant provided Geological Surveys NSW (GSNSW) with sufficient evidence of consultation with the potentially impacted titleholders. DRG has no residual concerns.

Environment Protection Authority (EPA)

The EPA raised no concerns and made no recommendations.

Heritage Council of NSW

The Heritage Council of NSW raised no concerns and made no recommendations.

5.4 Key Issues – Community

A single public submission in objection to the project was received from a member of the public residing outside the project locality. The submission raised concerns about the battery storage component of the project and contends that the Applicant would store low cost energy during off-peak periods, and sell it during peak demand at the highest price. These matters are addressed in **section 6.5** of this report.

6. Assessment

The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the four key issues, including the compatibility of the proposed land use, impacts on biodiversity and water resources, and increased traffic.

The key constraints for the project are depicted in **Figure 3**.

The Department has also considered the full range of potential impacts associated with the project and has included a summary of the conclusions relating to these in **section 6.5**.

A list of the key documents that informed the Department's assessment is provided in **Appendix A**.

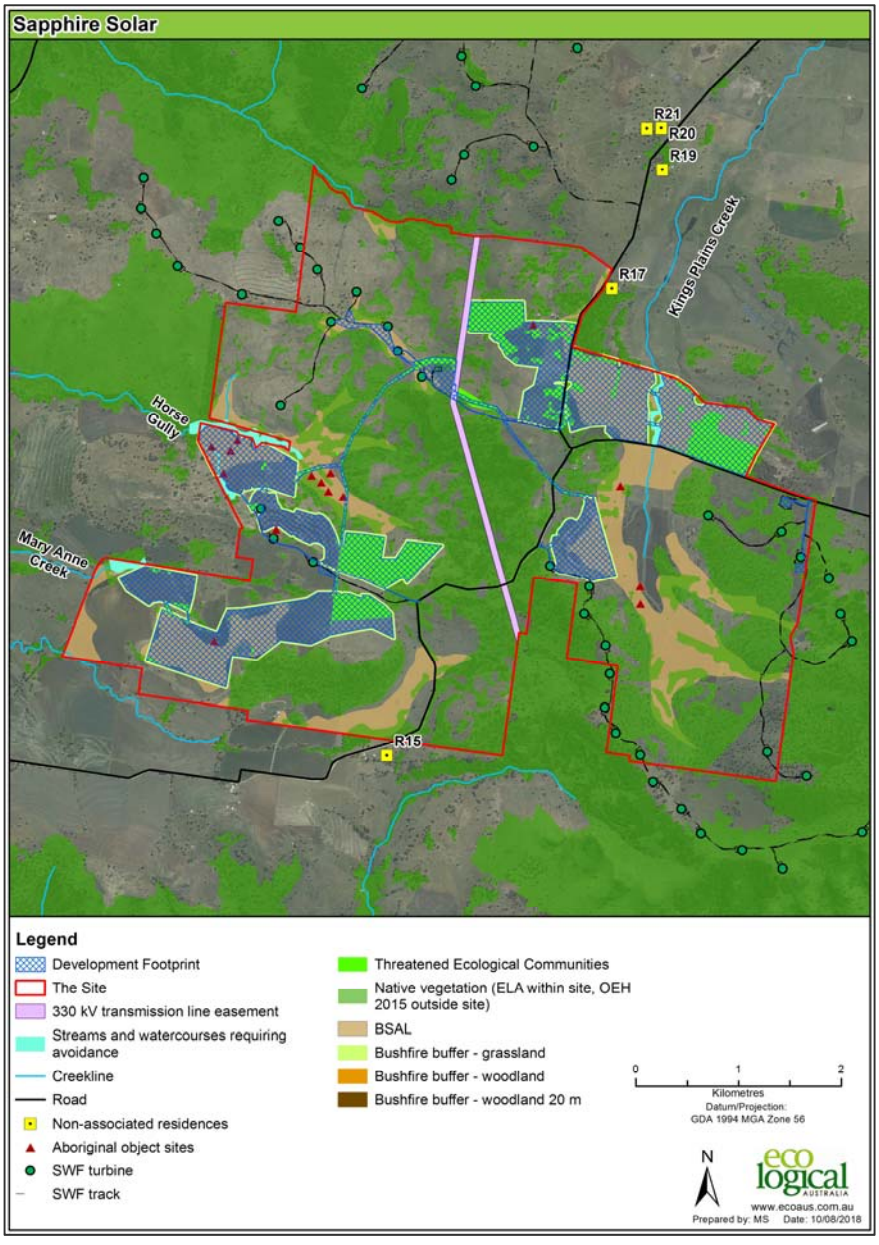

Figure 3 | Project Constraints

6.1 Compatibility of Proposed Land Use

Provisions of the Inverell LEP

The site is located wholly within the RU1 Primary Production zone under the *Inverell LEP 2012*. The RU1 zone includes various land uses that are both permitted with and without consent. As a solar farm is not expressly listed as permitted with or without consent, it is a prohibited land use under a strict reading of the LEP zoning table.

However, based on a broader reading of the LEP, and consideration of the objectives of the RU1 zone and other Council strategic documents, the Department considers that there is no clear intention to prevent the development of a solar farm on the project site.

Firstly, the Inverell LEP expressly references the Infrastructure SEPP and acknowledges that electricity generating works are regulated by the Infrastructure SEPP, rather than the LEP. As described above, a solar farm is permitted with consent on land zoned RU1 under the Infrastructure SEPP.

Secondly, the project is consistent with the objectives of the RU1 zone, particularly in relation to:

- minimising conflict between land uses;
- minimising fragmentation and alienation of resource lands; and
- encouraging diversity in primary industry enterprises.

The solar farm would complement the existing wind farm, particularly through the shared use of the battery storage facility and other ancillary infrastructure, thus minimising conflict between existing land uses and encouraging economic diversity.

The proposed development would not fragment or alienate any resource lands during its operation as it has generally low impacts and it could be easily returned to agricultural land, with the potential for mining and exploration, following decommissioning. Further, managed grazing may also occur during the operation of the solar farm.

Additionally, while the Inverell Shire local government area has traditionally relied on broadacre cropping and cattle, the introduction of solar energy would contribute to a more diverse local industry, thereby supporting the local economy and community.

Finally, the project is consistent with the Department's *New England North West Regional Plan 2036* which identifies the development of renewable energy generation as a future growth opportunity for the region, and Council supports the development of the project, subject to the implementation of appropriate environmental mitigation measures.

Potential Impacts on Agricultural Land

The project is located within the New England North West Region, one of the State's most fertile and productive agricultural areas. Over 1.5 million ha of this region have been mapped as BSAL. The site contains 527 ha of BSAL, 204 ha of which occurs within the proposed development footprint. The Applicant has avoided locating solar panels across the largest contiguous area of BSAL in the southeast of the project site (see **Figure 3**).

The agricultural output of the site would be reduced by the development of the solar farm while the project remains operational. However, the loss of 204 ha of agricultural cropping land represents a very small fraction of the agricultural output of the region. The project would result in a negligible reduction in the overall productivity of the region (0.01%).

Furthermore, the inherent agricultural capability of the land would not be affected by the project due to the relatively low scale of the development. Managed grazing may be used to maintain the height of ground cover during operations and the land would be returned to agricultural use following decommissioning.

The potential loss of a small area of cropping and grazing land in the region must be balanced against:

- the broader strategic goals of the Commonwealth and NSW governments for the development of renewable energy into the future;
- the environmental benefits of solar energy, particularly in relation to reducing greenhouse gas emissions;
- the economic benefits of solar energy in an area with good solar resources and capacity in the existing electricity infrastructure; and
- the benefits of dispatchable energy for grid stability and reliability.

To ensure the land would be returned to BSAL following decommissioning of the project, DoI L&W recommended that rehabilitation objectives and strategies be developed to guide the return of agricultural land back to existing levels of agricultural capability. The Applicant has committed to do this and the Department has included rehabilitation objectives in the recommended conditions to maintain the productivity of the agricultural land during the construction and operation of the project, and to fully reinstate the agricultural capability of the land following decommissioning of the project.

Potential Impacts on Mining and Exploration

The project is located within the Kings Plains deposit, part of the New England gem fields, which is one of the richest single accumulation of gem quality sapphires in NSW. The site is also located on land with existing mineral rights held by Eastern Feeder Holdings and Bond Resources.

The Applicant has drafted coordination deeds with Eastern Feeder Holdings to facilitate its ongoing activities in the area, and has consulted with Bond Resources, which accepts the potential impacts on its exploration licence while the project is operational. DRG confirmed that sufficient information has been provided about potential exploration land use conflicts and that the Applicant has undertaken adequate consultation.

While the ability to access parts of the underlying sapphire resource would be temporarily restricted during operation of the project, the Department is satisfied that access to this resource would be returned following decommissioning and rehabilitation.

6.2 Biodiversity

The EIS included a biodiversity assessment prepared in accordance with the NSW *Biodiversity Offset Policy for Major Projects* (the Offset Policy) and the supporting NSW *Framework for Biodiversity Assessment* (FBA), which are accredited under the bilateral agreement with the Commonwealth.

The Department and OEH consider that all threatened species and ecological communities on the site, including those listed under the EPBC Act, have been correctly identified and assessed.

Avoidance and Mitigation

The project has been designed to avoid areas of native vegetation, threatened species, and their habitats. Further, during the detailed project design stage, the Applicant intends to avoid the clearance of vegetation within the development footprint to the greatest extent possible.

In addition, the Applicant is proposing a range of mitigation and management measures to address potential indirect impacts on threatened species and communities, including:

- fencing off areas of vegetation to delineate boundaries and protect retained vegetation;
- implementing sediment and stormwater controls to prevent weed encroachment and nutrient runoff;
- limiting construction to daytime hours to avoid light spill; and
- installing nest boxes to minimise impacts to arboreal mammals during operation.

Vegetation Clearing

With the changes made to the project, the development footprint of the project reduced from 503 ha to 458.5 ha, in an effort to avoid areas of high quality native vegetation. **Table 2** provides a summary of the impacts of the project on each native vegetation type.

Table 2| Native Vegetation Communities, Disturbance Area and Credit Liability

Native Vegetation Community		Disturbance Area (ha)		Credit Liability	
		EEC	CEEC	EEC	CEEC
PCT510: Blakely's Red Gum – Yellow Box grassy woodland of the New England Tableland Bioregion	Woodland	9.9	7.4	159	119
	DNG	19.9	0.2	0	2
PCT921: Manna Gum - Rough-barked Apple - Yellow Box grassy woodland/open forest of the New England Tableland Bioregion and NSW North Coast Bioregion	Woodland	16.7	15.6	442	413
	DNG	16.0	14.2	0	150
PCT1383: White Box grassy woodland of the Nandewar Bioregion and Brigalow Belt South Bioregion	Woodland	2.9	0.9	54	18
	DNG	41.8	30.0	0	470
	Total Woodland	29.5	23.9	655	550
	Total DNG	77.2	44.4	0	622
	Total	**107.2**	**68.3**	**655**	**1,172**

As outlined in **Table 2**, the project would result in the clearance of up to 107.2 ha of EEC, of which 68.3 ha is also listed under the EPBC Act as Box Gum Woodland CEEC.

The majority of the EEC to be cleared (i.e. 77.7 ha) is grassland in relatively poor condition due to a history of extensive agricultural practices. The mid-storey vegetation is absent, and the native groundcover is largely absent.

The Department and OEH accept that impacts to any threatened communities would not be significant. Notwithstanding, the impacts would need to be offset in accordance with the FBA, as discussed below.

Biodiversity Offsets

The offset requirements for the project's impact to Box Gum Woodland EEC, including Box Gum Woodland CEEC, is summarised in **Table 2**.

The Department notes that the *NSW Biodiversity Offsets Policy for Major Projects* (Offsets Policy) allows for the retirement of biodiversity offset credits to be achieved by a number of mechanisms (not just through land-based offsets), namely:

- acquiring or retiring 'biodiversity credits';
- making payments into an offset fund that has been developed by the NSW Government; or
- providing supplementary measures.

The Applicant is proposing to offset the majority of the credit liability using surplus credits from its offset site 'Windemere', located 12 km northeast of the project site at Kings Plains.

The surplus credits at this site would retire like-for-like offsets for the 159 ecosystem credits associated with PCT510 and 442 ecosystem credits associated with PCT921.

The Applicant is proposing to retire the remaining 54 ecosystem credits associated with PCT1383 by purchasing credits externally or by using alternative like-for-like methods under the Offsets Policy.

Both the Department and OEH consider that the offset credit requirements have been correctly calculated using the FBA, and that the majority of credits would be able to be successfully retired using the 'Windemere' offset site.

However, DoEE has advised that it would likely require additional offsets for the clearance of Box Gum Woodland CEEC listed under EPBC Act, which would be confirmed separately to the NSW assessment process (refer to **Appendix H**).

Flora Impacts

Two threatened flora species listed under the both NSW and Commonwealth legislation were identified on the site during targeted surveys, including Bluegrass (*Dichanthium setosum*) and Austral toadflax (*Thesium australe*).

The Applicant has designed the project layout to avoid impacts to these species, and has committed to implementing measures during the construction, operation and decommissioning of the project to ensure any impacts are avoided. The Department and OEH accept that these species would not be impacted by the project.

Fauna Impacts

Nineteen (19) threatened fauna species listed under NSW legislation have the potential to be present at the project site based on potential or known habitat and the results of online database searches. Of these, only the Swift Parrot (*Lathamus discolor*) is listed under the EPBC Act.

Targeted surveys were undertaken for all 19 threatened fauna species, as well as 3 additional species, including the Regent Honeyeater (*Anthochaera Phrygia*), the Koala (*Phascolarctos cinereus*) and the Pale-headed Snake (*Hoplocephalus bitorquatus*). None of these 22 species were identified on the site and vegetation and habitat on the site was determined to be sufficiently degraded that no further assessment was required.

However, the project would require the clearing of 29.5 ha of foraging habitat of the Swift Parrot. As this habitat corresponds directly with Box Gum Woodland EEC to be cleared for the project, the offsets for Box Gum Woodland EEC would sufficiently offset this impact, and no additional species credit offsets would be required under the Offsets Policy.

Recommended Conditions

The Department considers that while the project would result in some biodiversity impacts, these impacts are relatively minor and are able to be adequately managed, or at least compensated for, through a range of mitigation and offsetting measures. In this regard, the Department has recommended conditions requiring the Applicant to:

- avoid disturbance to Bluegrass and Austral toadflax;
- minimise disturbance of EEC and threatened species, including the Swift Parrot;
- prepare and implement a detailed Biodiversity Management Plan; and
- retire the applicable biodiversity offset credits in accordance with the Offsets Policy.

Any offsets retired through payment into a fund or through the use of supplementary measures would also need to be retired in a manner endorsed by the Commonwealth Minister responsible for administering the EPBC Act.

With the implementation of all these measures, both the Department and OEH consider that the project could be undertaken in a manner that improves or at least maintains the biodiversity values of the locality over the medium to long term.

6.3 Water Resources

Watercourses

The site includes numerous first, second and third order streams. All streams are ephemeral and have been impacted by the history of agriculture on the site. The majority of streams within the development footprint have no discernible channel.

Following advice from DoI L&W, the Applicant revised the development footprint to:

- include a minimum setback of 20 m from third order streams, including Kings Plains Creek, Horse Gully and Mary Anne Creek from the development footprint, except for one internal access track crossing of Kings Plains Creek;
- avoid footings and pilings within first and second order streams, where possible; and
- minimise the number of watercourse crossings for internal access tracks and electrical cabling.

While DoI L&W considers that the project would not significantly impact water resources, it requested that the Applicant prepare a Watercourse Crossing Plan that details the design of the of Kings Plains Creek crossing. This requirement has been incorporated in the recommended conditions.

Flooding, Erosion and Groundwater

Flood modelling confirmed that the project is not expected to have a consequential impact on flooding within and downstream of the development. The development footprint would be located outside the potential flood zone and the solar panels would be designed and constructed to avoid impeding the flow of flood water.

Any potential erosion and sedimentation risks associated with the project can be effectively managed using best practice construction techniques.

The project would not have any impact on groundwater sources or groundwater dependent ecosystems.

Water Demands

The project would require around 100 megalitres (ML) of water during construction (mainly for dust suppression) and 0.85 ML a year during operation. A static water supply (20,000 litres) would also be established and maintained for fire protection

Water demands would be met via a combination of potable water trucked to the site, on-site rainwater tanks and existing dams (consistent with harvestable rights requirements), and from Wellingrove Creek under a water access licence. DoI L&W raised no concerns about water supply or licencing.

Recommended Conditions

The Department has recommended conditions of consent requiring the Applicant to:

- prepare and implement a Watercourse Crossing Plan that details the design of the crossing of Kings Plains Creek in consultation with DoI L&W;
- minimise the siting of solar panels and ancillary infrastructure within watercourses in the approved development footprint;
- minimise any soil erosion and activities in accordance with OEH's *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual; and
- ensure all works are undertaken in accordance with the *Guidelines for Controlled Activities on Waterfront Land (2012)* and *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (2004).

Subject to the recommended conditions, the Department and DoI L&W consider that the project would not result in significant impacts on water resources.

6.4 Traffic and Transport

Transport Routes and Site Access

The main transport route to be used by over-dimensional and heavy vehicles for the project during construction and operation is via the Gwydir Highway, Waterloo Road and the Western Feeder Road (see **Figure 2**).

Light vehicles would access the site via either the Gwydir Highway, Waterloo Road and Western Feeder Road from the southeast, the Gwydir Highway and Woodstock Road from the southwest, or Kings Plain Road from the north.

The irregular shape of the project, with solar panels located in four distinct areas of the site, means the site requires a number of access points off Waterloo Road and Western Feeder Road. A number of these access points are existing access points for the Sapphire Wind Farm (see **Figure 2**).

Traffic Volumes

Traffic volumes would vary during the 18 month construction period. During the peak construction period there would be up to 140 vehicle movements per day, including approximately 100 light vehicles and 40 heavy vehicles. Additionally, up to 15 over-dimensional vehicle movements would be required.

During operations, the project would generate an average of 10 heavy vehicles and 10 light vehicles per day.

RMS requested that all project related traffic, including light, heavy and over-dimensional vehicles, be restricted to 50 vehicles per hour during peak periods due to constraints at the intersection of Waterloo Road and the Gwydir Highway. The Department has included this requirement in the recommended conditions.

Vehicles would need to traverse the site via local roads to access laydown areas and construction compounds. Vehicle movements within the site would be dependent on the stage and location of construction. As such, the Department has not limited the number of vehicle movements within the site.

Any potential traffic impacts to local road users within the site would be minimised and managed through measures developed as part of the Traffic Management Plan. Council has agreed to this approach, and the Department has included this requirement in the recommended conditions.

Road Upgrades and Maintenance

A number of road upgrades have previously been undertaken along the proposed transport route associated with the Sapphire Wind Farm. Nevertheless, RMS has requested that maintenance be undertaken at the intersection of Waterloo Road and the Gwydir Highway prior to construction of the solar farm.

Additionally, RMS and Council recommended that the Applicant undertake independent dilapidation surveys of the local roads on the transport route before and after construction works, and repair any project-related damage.

Recommended Conditions

The Department has recommended conditions of consent requiring the Applicant to:

- undertake the relevant road maintenance requirements prior to the commencement of construction;
- ensure the number of vehicles accessing the site does not exceed the volumes predicted in the EIS;
- ensure that the number of any vehicles associated with the development utilising the intersection of the Gwydir Highway and Waterloo Road during peak periods does not exceed 50; and
- prepare and implement a Traffic Management Plan in consultation with RMS and Council.

Subject to the recommended conditions, the Department, RMS and Council are satisfied that the project would not result in significant impacts on road network capacity, efficiency or safety.

6.5 Other Issues

The Department's consideration of other issues is summarised in **Table 3**.

Table 3 | Other Issues

Issue	Findings	Recommended Condition
Visual	• The solar panels would be relatively low lying (up to 3 m). • The operations and maintenance building, site office and battery storage facility would stand at a maximum height of 3 m, 3 m and 5 m, respectively. These structures are considered a similar size to agricultural sheds commonly utilised in the local area. • The relatively low height of the infrastructure would limit the visual impact from most viewpoints. • Three non-associated residences (i.e. R015, R017 and R019) are located within 2 km of the proposed development footprint (see **Figure 3**). Of these, the nearest residence (R017) is located 490 m from the development footprint. Existing vegetation and topography would partially screen the solar panels from these residences. • The Department considers that the visual impacts of the project on these residences would be low, and mitigation in the form of visual screening is not required. • Notwithstanding, the Applicant has committed to offer visual screening at these residences if requested by the landowners. • The photovoltaic panels are designed to absorb rather than reflect sunlight, and the Department is satisfied that the project would not cause noticeable glint or glare compared to other building surfaces. • The Department considers there would be no significant visual impacts on the surrounding residences or road users.	• Ensure that external lighting is minimised and complies with the relevant Australian Standards. • Prohibit any signage or advertising on the development, unless for safety purposes.
Noise	• The proposed construction, upgrading and decommissioning activities would be well below the 'highly noise affected' criterion of 75 dB(A) in the EPA's *Interim Construction Noise Guideline* (ICNG). • However, two non-associated residences (i.e. R015, R017) may be subject to temporary noise up to 5 dB(A) above the 'noise affected' criterion of 45 dB(A) when construction activities are undertaken on site in proximity to them. • These exceedances would be short-term (up to 3 weeks), limited to standard daytime construction hours and similar to noise generated by agricultural machinery such as tractors and harvesters. • Construction noise would be minimised and managed by implementing the noise mitigation work practices set out in the ICNG, including scheduling activities to minimise noise, using quieter equipment, informing the immediately surrounding landowners and establishing a complaints handling procedure. • There would be negligible noise during operation.	• Minimise the noise generated by any construction, upgrading or or decommissioning activities on site in accordance with best practice requirements outlined in the ICNG, including consultation with nearby landowners. • Restrict construction hours to Monday to Friday 7 am - 6 pm, and Saturday 8 am - 1 pm.

Issue	Findings	Recommended Condition
Heritage	• Site surveys identified six Aboriginal heritage items within the project site. • One of the items was assessed as having low to moderate significance (i.e. SU13/L1), and five of the items were assessed as having low significance. • The Applicant has committed to salvaging the one item with low to moderate significance prior to construction commencing and relocating it in agreement with the Registered Aboriginal Parties. • Given the highly disturbed nature of the site, the likelihood of identifying unexpected items during construction is low. If Aboriginal artefacts or skeletal material are identified, all work would cease and the Chance Finds Protocol would be implemented. • There are no known items of historic heritage value in the vicinity of the project site. • The Department and OEH consider that the project is unlikely to result in a significant impact on the heritage values of the locality.	• Salvage and relocate Aboriginal heritage item SU13/L1 to a suitable alternative location. • Cease works and notify the NSW Police and OEH if human remains are identified over the life of the project. • Prepare a Chance Finds Protocol.
Battery storage facility hazards	• In response to increasing demands for dispatchable energy, the Applicant is proposing an on-site battery storage facility, comprising approximately 45 battery units each containing approximately 9,790 lithium-ion battery cells. • Two potential locations are proposed for the battery storage facility (see **Figure 2**). These would be located within cleared and fenced areas away from residences and environmentally sensitive landscapes. Only one location would be selected during the detailed design phase. • The facility would include purpose-built containers to house the batteries, each comprising power conversion systems, transformers, air conditioning and temperature monitoring systems. • The hazard assessment included in the EIS was undertaken in accordance with SEPP No.33. • The assessment concluded that the implementation of control measures would minimise the potential risks of handling, storing and operating the batteries. These measures include (but are not limited to): o minimum separation distances of 2 m between containers; o a 20 m APZ around the battery storage facility; o an integrated fire suppression system in each container; o automated monitoring of voltage and temperature, including alarm and shutdown response systems; and o pressure release exhaust in the container. • The Department has carefully assessed the proposed battery storage facility in consultation with its internal hazards unit and relevant government agencies. The Department notes that both facility locations would be located away from residences and environmentally sensitive landscapes. • Subject to the recommended conditions, the Department is satisfied that risks associated with the facility would be minimal.	• Prepare a Fire Safety Study consistent with the Department's *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'* in consultation with Fire & Rescue NSW, and implement the recommended mitigation measures.

Issue	Findings	Recommended Condition
Other hazards	• The project would comply with the National Health and Medical Research Council standards for electric and magnetic fields. • Part of the site is located on land mapped as bushfire prone land. • Following a request by the RFS, the Applicant provided additional mapping to show the location of woodland adjacent to proposed solar panels (see **Appendix C**) and revised the project layout to include a 20 m APZ around project infrastructure in those areas. • The Department considers that the bushfire risks can be suitably controlled through the implementation of standard fire management procedures.	• Ensure that the development complies with the relevant asset protection requirements in the RFS's *Planning for Bush Fire Protection 2006.* • Prepare a Fire Management and Emergency Response Plan in consultation with RFS and Fire & Rescue NSW.
Energy Security	• The one submission received raised concerns that the project, or a combination of the project and a range of other renewable energy projects, could have an adverse impact on energy security in NSW, and increase electricity prices. • In particular, this submission contends that renewable energy projects may force the closure of baseload energy suppliers (e.g. coal and gas), leading to higher energy prices as the remaining baseload suppliers may increase prices at times renewable energy cannot be generated. • The Department acknowledges and understands the broad concerns raised in this submission, however any evaluation of these issues must have regard to the broader strategic context. • Firstly, NSW forms part of the National Electricity Market (NEM). The NEM is complex and is governed by a robust statutory framework at both the Commonwealth and State level which covers the regulation of electricity generation, distribution and pricing. • Secondly, there is strong policy support at both the Commonwealth and State level for the increased development of renewable energy projects to ensure that a greater proportion of electricity is generated by renewable sources, and to reduce greenhouse gas emissions associated with any electricity generation. • Thirdly, the Department notes that long-term energy policies are being informed by recommendations in the Independent Review into the Future Security of the National Electricity Market, which provides a blueprint for ensuring Australia's energy systems remain affordable, reliable, sustainable and secure. • In the Department's view, the likelihood of the project having an adverse impact on energy security or electricity prices in NSW is extremely low, given that it would only add 180 MW of capacity to the NEM, which at this stage has a total generation capacity of over 397,000 MWh annually. • Further, the battery storage facility would address the intermittency of the project to some extent. • Additionally, any incremental or cumulative impacts associated with the potential intermittency of renewable energy projects could be mitigated through the operation of the NEM.	• No specific conditions required.

Issue	Findings	Recommended Condition
Subdivision	• The Applicant proposes to subdivide all lots on which the development footprint is located (i.e. excise the development footprint from existing lots) to facilitate lease agreements with the land owners. • The proposed subdivision would result in 15 new lots, and 44 residual lots. These lots would range in size from approximately 0.017 ha to 579.04 ha. • 57 of the reconfigured lots would be prohibited under a strict reading of the *Inverell LEP 2012* as they would not meet the minimum lot size for RU1 land (200 ha). • 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 is satisfied that the subdivision should be approved as: o it would permit existing agricultural land uses to continue on land that is not required for the development; o it would not result in the addition of any dwelling entitlements on the subdivided lots; and o it is consistent with key objectives of the RU1 zone as it would encourage diversity in primary industry enterprises and minimise conflict between land uses. • Further, Council has not objected to the proposed subdivision.	• Subdivide the proposed lots providing information is provided in accordance with requirements of section 157 of the *Environmental Planning and Assessment Regulation 2000.*

7. Evaluation

The Department has assessed the development application, EIS, submissions, Response to Submissions and additional information provided by the Applicant and relevant government agencies. The Department has also considered the objectives and relevant considerations under section 4.15 of the EP&A Act.

The Department considers the site to be appropriate for a solar farm as it has good solar resources and available capacity on the existing electricity network. In addition, the site would be co-located with the Sapphire Wind Farm which would enable co-located energy generation while reducing the potential environmental impacts through the sharing of associated infrastructure.

The project has been designed to largely avoid key constraints, particularly in relation to high value native vegetation and watercourses. Any residual impacts would be managed or offset through the recommended conditions of consent.

The project would not result in any significant reduction in the overall agricultural productivity of the region. Additionally, the site could be easily returned to agricultural uses after the project is decommissioned and the inherent agricultural capability of the land would not be affected.

To address the residual impacts of the project, the Department has recommended a range of detailed conditions, developed in conjunction with agencies and the Council, to ensure these impacts are effectively minimised or offset. The Applicant has reviewed the conditions and does not object to them.

Importantly, the project would assist in transitioning the electricity sector from coal and gas-fired power stations to low emissions sources. It would generate up to approximately 397,000 MWh of clean electricity annually, which is enough to power up to 67,000 homes and save up to 380,000 tonnes of greenhouse gas emissions per year. It is therefore consistent with the goals of the Commonwealth's *Renewable Energy Target* and NSW's *Climate Change Policy Framework*.

Further, the project includes an energy storage facility that would enable the project to store solar and wind energy for dispatch to the grid, which would contribute to increased grid stability and energy security.

The Department is satisfied that the project achieves a reasonable balance between maximising the efficiency of the solar resource development and minimising the potential impacts on surrounding land users and the environment. The project would also stimulate economic investment in renewable energy and provide flow-on benefits to the local community through job creation and capital investment.

On balance, the Department believes that the project is in the public interest and should be approved, subject to the recommended conditions of consent.

8. Recommendation

It is recommended that the A/Executive Director, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report; and
- **accepts** and **adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants consent** to the application in respect of the Sapphire Solar Farm (SSD 8543);
- **signs** the attached development consent and recommended conditions of consent (see **Appendix G**).

Recommended by:

10/8/18

Diana Mitchell
Senior Planning Officer
Resource and Energy Assessments

Recommended by:

10/8/18

Clay Preshaw
Director
Resource and Energy Assessments

9. Determination

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

16.8.18.

Mike Young
A/Executive Director
Resource Assessments and Business Systems

Appendices

Appendix A – List of Documents

Sapphire Solar Farm Environmental Impact Statement, Eco Logical Australia, 2018.

Sapphire Solar Farm Response to Submissions Report, Eco Logical Australia, 2018.

Response to Request for Additional Information, Eco Logical Australia, 27 April 2018.

Additional Information Letter and Attachments, CWP Solar Pty Ltd, 19 June 2018.

Surrounding Vegetation in 20m Buffer, Drawings SAP-174 Sheets 1 to 5, CWP Solar Pty Ltd, 30 May 2018.

Appendix B – Environmental Impact Statement

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8643

Appendix C – Additional Information

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8643

Appendix D – 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. These include:

- the objects found in Section 1.3 of the EP&A Act; and
- the matters listed under Section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

The Department has considered all of these matters in its assessment of the project and has provided a summary of this assessment below.

Aspect	Summary
Objects of the EP&A Act	The objects of most relevance to the Minister's decision on whether or not to approve the project are found in Section 1.3(a), (b), (c), (e) and (f) of the EP&A Act. The Department is satisfied that the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 5(c)), particularly as the project is: • a permissible land use on the subject land; • located in a logical location for efficient solar energy development; • 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; and • consistent with the goals of the Renewable Energy Action Plan, and would assist in meeting Australia's renewable energy targets whilst reducing greenhouse gas emissions. The Department has considered the encouragement of ESD (Object 1.3(b)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. The Applicant 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 6.2** of this report. Following its consideration, the Department considers that the project is able to be undertaken in a manner that would improve or 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 can 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 provided in **section 6.5** of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality. The Department satisfied that any residual impacts on heritage can be managed and/or mitigated by imposing appropriate conditions.

Aspect	Summary
State Significant Development	Under Section 4.38 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 11 October 2017, the Executive Director, Resource Assessments and Business Systems, may determine the project.
Environmental Planning Instruments	The *Inverell Local Environment Plan (LEP) 2012* applies and is discussed in **sections 4.2** and **6.1** of this report. The project is permissible under the Infrastructure SEPP. The Applicant completed a Preliminary Hazard Analysis for the battery storage facility, in accordance with *SEPP No. 33 – Hazardous and Offensive Development* (SEPP No. 33). The Department's consideration of this analysis is discussed in **section 6.5**. Inverell Shire Council is listed under *SEPP No. 44 – Koala Habitat Protection*. The assessment found that there is no core koala habitat identified on the site, and the Department is satisfied that there would be no impacts on koala habitat. The Department has considered the provisions of *SEPP No. 55 – Remediation of Land*. A preliminary assessment of the land found no contaminated land within the project site, and the Department is satisfied the site is suitable for the development.
Commonwealth Approvals	In accordance with the EPBC Act, the project (EPBC 2017/8121) was determined to be a 'controlled action' on 5 January 2018 due to likely significant impacts to listed threatened species and communities (sections 18 and 18A). The Departments assessment of all matters that the Commonwealth Minister must consider under the EPBC Act is provided in **section 6.2** and **Appendix H** of this report.

Appendix E – Submissions

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8643

Appendix F – Response to Submissions

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8643

Appendix G – Recommended Conditions of Consent

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8643

Appendix H – Consideration of Commonwealth Matters

In accordance with the bilateral agreement between the Commonwealth and NSW Governments, the Department provides the following additional information required by the Commonwealth Minister, in deciding whether or not to approve a proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Department's assessment has been prepared based on the assessment contained in Sapphire Solar Farm Pty Ltd's (the Applicant) Environmental Impact Statement (EIS), Response to Submissions (RTS) and supplementary information provided during the assessment process dated 19 July 2018, public submissions, and advice provided by the NSW Office of Environment and Heritage (OEH), other NSW government agencies and the Commonwealth Department of Environment and Energy (DoEE).

This Appendix is supplementary to, and should be read in conjunction with, the assessment included in **section 6** of this assessment report which includes the Department's consideration of impacts to listed threatened species and communities, mitigation measures for threatened species, including for Matters of National Environmental Significance (MNES).

H.1 Impacts on EPBC Listed Species and Communities

As outlined in **section 6.2**, the project would potentially have a significant impact on two threatened species or ecological communities listed under the EPBC Act, including:

- clearing of 68.3 ha of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (Box Gum Woodland); and
- clearing of habitat (29.5 ha Box Gum Woodland) likely to be used by the Swift Parrot (*Lathamus discolour*).

The Applicant's letter dated July 2018 shows the location of EPBC Act listed Box Gum Woodland within the proposed disturbance area (see **Appendix C**).

The Applicant's EIS, RTS and additional information, and OEH's assessment of impacts on EPBC Act MNES matters (dated 23 May 2018) addresses the impacts on the Swift Parrot (see **Appendix B, C, E** and **F**).

The Department notes that both the Applicant and OEH concluded that there would not be a significant impact on the following species that were also identified by the Commonwealth for further assessment:

- Regent Honeyeater (*Anthochaera Phrygia*): No Regent Honeyeaters were detected during targeted surveys, which were undertaken in the appropriate season. In accordance with the FBA, no further consideration of this species is required as it was not detected on the site and because vegetation and habitat on the site was determined to be sufficiently degraded. Both OEH and the Department consider that no further assessment is required as this species is unlikely to occur.
- Border Thicktailed Gecko (*Uvidicolus sphyrurus*): An assessment of the likelihood of occurrence of this species concluded that the habitat present within the site is too degraded and therefore the species is unlikely to occur on the site.
- Bluegrass *(Dichanthium setosum*) and Austral toadflax (*Thesium australe*): These species were identified within the site. The Applicant has committed to avoid any impacts on these species.

Further detailed consideration of the impact on these two threatened species or ecological communities, including proposed mitigation, management and offsetting requirements, is considered in more detail below.

H. 2 Requirements for Decisions about Threatened Species and Communities

In accordance with Section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of subsection of Section 18 or Section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved conservation advices.

Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and by appropriate funding.

The recommendations of this assessment report are consistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended development consent requires avoidance, mitigation and management measures for listed threatened species and communities, and all information related to the project is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which, together with existing protected areas, would safeguard representative samples of the natural ecosystems occurring therein (with particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using their best endeavours to protect such fauna and flora (with special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006.

Approved Conservation Advice and National Recovery Plans

The approved conservation advice and national recovery plans relevant to this project are discussed below and are available at http://www.environment.gov.au/cgi-bin/sprat/public/conservationadvice.pl.

Approved conservation advice under the EPBC Act for threatened species that would potentially be significantly impacted are available for the Swift Parrot.

Approved national recovery plans under the EPBC Act for threatened species that would potentially be significantly impacted are available for Box Gum Woodland and Swift Parrot.

Box Gum Woodland

The Department has considered the approved national recovery plan under the EPBC Act for Box Gum Woodland in assessing the impacts of the project, and notes that its key objective is to achieve no net loss in the extent and condition of Box Gum Woodland. The Department notes that there is no approved conservation advice for Box Gum Woodland that requires consideration under the EPBC Act.

While the project would clear 68.3 ha of Box Gum Woodland listed under the EPBC Act, the Applicant is proposing offsets in accordance with the FBA (see **section 6.2** of this assessment report). The Biodiversity Offset Strategy and Biodiversity stewardship agreement would require detailed management actions and monitoring programs to improve the condition of Box Gum Woodland within the offset areas.

In accordance with the FBA, the Department notes that the low-quality Box Gum derived native grassland would not be offset (see **section 6.2** of this assessment report). Given that the FBA does not require or enable offsets to be generated for low quality vegetation below the relevant threshold, the Department and OEH consider that this is a matter for the Commonwealth to address if required.

The Department considers that with the proposed site mitigation and offset measures (see **section 6.2** of this assessment report), the project would not be inconsistent with the objectives of the national recovery plan. Key actions of the national recovery plan, including to the EPBC Act approval monitoring, would also be implemented as part of the Biodiversity Management Plan.

Key mitigation measures would include:

- using a method of clearing that avoids damage to retained native vegetation and reduces soil disturbance (i.e. vegetation removal with chain-saws rather than heavy machinery);
- a two-stage clearing process:
    - Stage 1: marking habitat features, and removing vegetation except habitat features; and
    - Stage 2: removal of habitat features under the supervision of ecologists to relocate resident fauna; and
- briefing all clearing staff about the two-stage clearing process, and their responsibilities to minimise impacts to biodiversity.

Other measures to minimise the impacts of the project would include (at a minimum):

- temporary fencing to delineate clearing boundaries;
- marking of trees for retention within open space areas;
- cleaning of mobile plant prior to works to prevent the spread of weeds and pathogens;
- sediment controls adjacent to waterways to prevent impacts downstream; and
- signage within the works area to advise contractors of responsibilities.

The Department recommends that DoEE attach conditions 9, 10 and 11 of Schedule 3 of the recommended conditions of consent (see **Appendix G**) to the EPBC Act approval.

Swift Parrot

The Department has considered the approved conservation advice and national recovery plan under the EPBC Act for the Swift Parrot in assessing the impacts of the project, and notes that the main threats and causes for decline in Swift Parrot population are clearing, fragmentation and degradation of its habitat, as well as flight collision hazards, disease and illegal capture and trade.

The national recovery plan includes a number of objectives, recommendations and actions relevant to the project, including maintaining and enhancing the value of Swift Parrot habitat, monitoring trends in Swift Parrot population size and dispersion, and monitoring and managing the incidence of collisions, competition and disease.

The Department considers that the project would be unlikely to cause further decline of the swift parrot population given that it would impact primarily on sub-optimal foraging habitat.

Further, the Department considers that with the proposed site mitigation (detailed above) and offset measures (detailed in **section 6.2** of this assessment report), the project would not be inconsistent with the objectives of the national recovery plan. Key actions of the national recovery plan, including monitoring, would also be implemented as part of the Biodiversity Management Plan.

The Department recommends that DoEE attach conditions 9, 10 and 11 of Schedule 3 of the recommended conditions of consent (see **Appendix G**) to the EPBC Act approval.

Threat Abatement Plans

The Threat Abatement Plans relevant to this project are discussed below and are available at http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved.

Threat Abatement Plan for disease in natural ecosystems caused by *Phytophthora cinnamomi* (relevant to Box Gum Woodland)

Phythophthora cinnamomi is a microscopic soil-borne organism (i.e. pathogen) that has the ability to cause plant disease and death by interfering with the movement of water and nutrients to plants. It can be spread in water, soil or plant material that contains the pathogen, and dispersal is favoured by moist or wet conditions. It can be carried in both overland and subsurface water flow and by water moving infested soil or organic material. Native and feral animals have been implicated in spreading P. cinnamomi, particularly where there are digging behaviours (e.g. pigs, rabbits). Humans, however, have the capacity to disturb and transport more soil than any other vector.

Box Gum Woodland is identified as an ecological community that may be affected by *Phythophthora cinnamomi* .

That Department notes that construction related activities have the potential to introduce or spread the pathogen through the movement of vehicles, the use of construction equipment/tools for undertaking excavation work, footwear and the introduction of infected soil or building materials to uninfected areas. The threat abatement plan for managing the impacts of P. cinnamomi identifies actions to minimise its spread to uninfected sites and mitigate impacts at infected sites.

The Department has recommended that actions to avoid and mitigate the spread of this pathogen are implemented as part of the Biodiversity Management Plan. Subject to this recommended condition, the Department considers approval of the project would not be inconsistent with the threat abatement plan for disease in natural ecosystems caused by P. cinnamomi.

Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (relevant to Box Gum Woodland)

Feral pigs impact on native flora and fauna due to their presence, movement, rooting, wallowing, trampling, tusking/rubbing trees and consumption of water, animals, plants and soil organisms. Direct impacts from feral pigs include predation, habitat loss and degradation, competition and disease transmission, which can impact on native flora and fauna.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs.

Threat Abatement Plan for competition and land degradation by rabbits (relevant to Box Gum Woodland)

Rabbits have direct impacts on native flora and fauna by grazing on native vegetation and preventing regeneration, and by competing with native fauna for habitat and food. Rabbits also have indirect and secondary impacts, such as supporting populations of introduced predators by providing a food source, and denuding vegetation exposing fauna species to increased predation. Their behaviour, including digging and browsing, also leads to a loss of vegetation cover and consequent slope instability and soil erosion, which further degrades fauna habitat.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for land degradation by rabbits.

Threat Abatement Plan for competition and land degradation by unmanaged goats (relevant to Box Gum Woodland)

Goats affect native flora by grazing on native vegetation and can result in overgrazing. Grazing by goats can prevent regeneration of native flora, cause erosion through overgrazing, foul waterholes and introduce weeds, through ingestion of seeds, which they can deposit in their dung. Goats also compete with native animals for food and shelter.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for land degradation by unmanaged goats.

Threat Abatement Plan for predation by feral cats (relevant to Swift Parrot)

Feral cats are significant predators in Australia that interact with native fauna in various ways, including predation, competition for resources and transmission of disease.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for predation for by feral cats.

Threat Abatement Plan for the biological effects, including lethal toxic ingestion, caused by cane toads (relevant to Box Gum Woodland)

While cane toads have the potential to colonise new habitats created by the construction of sediment and detention basins, this species is not known to occur in the region, and it is therefore unlikely that disturbance as a result of the project would lead to the presence of cane toads.

H. 3 Requirements for Decisions about World Heritage Properties

The Commonwealth determined that the project is not a controlled action for the controlling provision of World Heritage (Section 12 and Section 15A of the EPBC Act) and therefore further consideration is not required.

H. 4 Requirements for Decisions about National Heritage Places

The Commonwealth determined that the project is not a controlled action for the controlling provision of National Heritage (Section 15B and Section 15C of the EPBC Act) and therefore further consideration is not required.

H. 5 Additional EPBC Act Considerations

Table H1 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act additional to those already discussed.

Table H1 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Considerations	Conclusion
Mandatory Considerations		
136(1)(b)	Social and economic matters are discussed in Section 1.2 and 4 of the assessment report.	The Department considers that the proposed development would result in a range of benefits for the local and regional economy and is of public benefit, including the provision of 200 full time equivalent jobs during construction and 10 during operations. Any negative social impacts, particularly on the local community residing in the area, would largely be restricted to the construction period, and have been considered throughout the assessment of the development, with mitigation measures proposed if necessary.
Factors to be taken into account		
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taking into account, in particular: • the long term and short term economic, environmental, social and equitable considerations that are relevant to this decision; • conditions that restrict environmental impacts and impose monitoring and adaptive management, reduce any lack of certainty related to the potential impacts of the project; • conditions requiring the project to be delivered and operated in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance; • advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in relation to all of the controlling provisions for this project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the proponent to mitigate the environmental impacts of the project.	The Department considers that the project, if undertaken in accordance with the recommended conditions of consent, would be consistent with the principles of ESD.

EPBC Act section	Considerations	Conclusion
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account in its assessment.
Factors to have regard to		
176(5)	Bioregional plans	There is no approved bioregional plan related to the activity.
Considerations on deciding on conditions		
134(4)	Must consider: • information provided by the person proposing to take the action or by the designated proponent of the action; and • the desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	All project related documentation is available from the Department's website: www.majorprojects.planning.nsw.gov.au. The Department considers that the conditions at **Appendix G** are a cost effective means of achieving their purpose. The conditions are based on the material provided by the Applicant that was prepared in consultation with the Department, OEH, and other government agencies.

H.6 Conclusions on Controlling Provisions

For the reasons set out in **section 6.2** and this Appendix, the Department considers that the impacts of the action would be acceptable, subject to avoidance, mitigation measures described in the Applicant's EIS, and the recommended conditions of consent in **Appendix G**.

H.7 Other Protected Matters

The Commonwealth DoEE determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage, National Heritage, migratory species, Ramsar wetlands, Commonwealth marine environment, Commonwealth land, Commonwealth action, nuclear action, Great Barrier Reef Marine Park, Commonwealth Heritage places overseas and a water resource, in relation to coal seam gas development and large coal mining development.