



SUBMISSION REPORT
LIMONDALE SOLAR FARM - MOD2
BATTERY ENERGY STORAGE SYSTEM (BESS)

July 2022

SSD 8025

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| Lead author/s | William Radford and Remi Rauline |

Contents

| | |
|---|----|
| 1. Executive Summary..... | 4 |
| 2. Introduction | 6 |
| 3. Analysis of submissions..... | 10 |
| 4. Actions taken since exhibition | 11 |
| 5. Response to submissions..... | 12 |
| 6. Updated Project Justification | 16 |
| 7. References | 17 |
| 8. Appendix 1 : Submissions register | 18 |
| 9. Appendix 2: Updated mitigation measures..... | 19 |
| 10. Appendix 3: Additional information | 20 |

1. Executive Summary

Background and aims

The Limondale Solar Farm Project is a State Significant Development (SSD) and was granted development consent (SSD 8025) under delegated authority of the Minister for Planning pursuant to the former Section 89E (currently, Section 4.38) of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) on 31 August 2017.

Limondale Solar Farm seeks to modify SSD 8025 to permit the installation and operation of a Battery Energy Storage System (BESS) within the existing approved Project Area and development footprint, hereafter referred to as the 'Modification'. The overall objective of the proposed Modification is to construct and operate a BESS at the Project Area, to provide the facility with dispatchable firming resources and enhanced electricity grid and service capabilities, while also avoiding and minimising environmental, community and landholder impacts.

The three BESS options are:

- A decentralised direct current (DC) coupled (DC-coupled) lithium-ion BESS of up to 200MW/800MWh capacity;
- A centralised alternating current (AC) coupled (AC-coupled) lithium-ion BESS of up to 200MW/800MWh capacity; and
- A centralised AC-coupled flow battery system of up to 200MW/800MWh capacity.

This Submissions Report has been prepared to fulfil the requirements the State Significant Development Guidelines (2021) and its Appendix C.

The key objectives of the Submissions Report are to:

- 1) Consider and respond to the issues raised by the Public, Local Government(s) and other Government agencies, in response to the exhibition of the Limondale Solar Farm BESS – Modification 2 report (17 March 2022).
- 2) Propose actions to address concerns and questions raised by the Public, Local Government(s) and government agencies.

Analysis of submissions

The exhibition of the Modification Report for Limondale Sun Farm -Modification 2 concluded on the 7th of June 2022.

The Department received no submissions from the General Public on the project.

The Department received advice from ten Government Agencies and the advice from the Rural Fire Service is still outstanding and will be forwarded to us once received by the Department.

Out of the ten agencies, Balranald Shire Council, Fire and Rescue NSW and Transport for New South Wales have asked for complementary information about:

- Traffic Management
- Waste Management
- Local resource Management
- Catering/accommodation of the workforce
- Fire and Rescue Management

Actions taken since exhibition

Submissions were reviewed by RWE and discussed with appropriate authorities:

- Balranald Shire Council
- Fire and Rescue NSW.
- Transport for NSW.

From those discussions emerged concerted actions constituting our responses to submissions.

Responses to submissions

Balranald Shire Council:

RWE agrees to conditional consent to the following:

Prior to the construction of the BESS, RWE will amend the existing Accommodation Strategy Plan to the reasonable satisfaction of the Balranald Shire Council.

Prior to the construction of the BESS, RWE will consult with council regarding the required materials for the hardstand and will seek where possible to select materials that will not affect the councils road building efforts.

Prior to the construction of the BESS, RWE will assess local recycling streams and produce a Waste Management Plan to the satisfaction of Balranald Shire Council.

Fire and rescue New South Wales:

RWE agrees to conditional consent to the following:

Prior to construction of the BESS, RWE will develop a comprehensive Fire Safety Study in collaboration with appropriate fire agencies to the satisfaction of Fire and Rescue New South Wales.

Prior to the construction of the BESS, RWE will amend the existing Emergency Response Plan to integrate the BESS development to the satisfaction of Fire and Rescue New South Wales.

Prior to the construction of the BESS, RWE will develop an Emergency Service Information Package in collaboration with appropriate fire agencies to the satisfaction of Fire and Rescue New South Wales.

Transport for NSW

Prior to construction of the BESS, RWE agrees to conditional consent and will update the existing Traffic Management Plan to the satisfaction of Transport for NSW.

2. Introduction

The Limondale Sun Farm Pty (Ltd) is a State Significant Development (SSD) and was granted development consent (SSD 8025) under delegated authority of the Minister for Planning pursuant to the former Section 89E (currently, Section 4.38) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) on 31 August 2017.

The Project was approved on 31 August 2017, which permits the construction and operation of a solar farm and associated infrastructure with an estimated nominal capacity of 249 megawatts (MW). It was originally approved under Section 4.38 of the EP&A Act and was previously modified on 27 July 2018 (SSD 8025 MOD 1) under Section 4.55(1A) of the EP&A Act, to permit extended hours of construction. The Project construction of the Limondale Solar Farm is near completion and consists of the following:

- Approximately 872,000 solar panels mounted on single axis-tracker frames, with a modified height of 4 metres (m);
- Up to 114 inverter stations (up to 2.3 m in height), each containing an inverter and a 22 or 33 kilovolt (kV) transformer, and an onsite switchyard containing a transformer and associated switchgear;
- Internal access tracks, staff amenities, offices, car parking, laydown areas, security fencing;
- A 220 kV underground power line connecting to the existing Balranald Substation that is situated 500 m to the east of the Project; and
- Modified Project Area allotments following the approved subdivision of Lot 12 DP 751179.

The Limondale Sun Farm *Environmental Impact Statement* (EMM Consulting Pty Ltd, 10 April 2017) noted the future potential of the installation of battery and energy storage devices within the development footprint subject to technologies available. Schedule 3, Condition 1 of the development consent (SSD 8025) stipulates that battery energy storage is not permitted onsite; however, a modification of the consent may permit future battery storage within the Project Area.

In March 2022 Limondale Solar Farm applied to modify SSD 8025 to facilitate the installation and operation of a Battery Energy Storage System (BESS) within the approved Project Area and development footprint, hereafter referred to as the 'proposed Modification' or 'Modification'.

The overall objective of the proposed Modification was to develop a BESS at the Project, to provide the facility with dispatchable firming resources and enhanced grid and service capabilities, while also avoiding and minimising environmental, community and landholder impacts.

The modification report assessed the impacts of the Modification and presents three BESS options which are currently being considered by Limondale Solar Farm. The modification report was prepared such that all options were fully assessed and evaluated, however only one option will be selected by LSF subject to commercial and operational factors.

The three BESS options are:

A **decentralised direct current coupled (DC-coupled) Lithium-ion (Li-ion) BESS** of up to 200MW/800MWh capacity.

This system option involves 260 (20 foot) battery containers and associated infrastructure i.e., BESS Heating Ventilation and Air Conditioning (HVAC), DC-DC converters and connecting electrical wires being situated next to photovoltaic (PV) inverter stations located throughout the solar arrays.

Despite the decentralised design, all infrastructure resides entirely within the approved Project Area and development footprint considered under the original development consent.

This option would cover a combined area of approximately 289,877 m².

This DC-coupled option has a combined area greater than the AC-coupled option due to the distribution of equipment and infrastructure across the Project Area, and spacing between key items e.g., BESS containers.

A **centralised alternating current coupled (AC-coupled) Li-ion BESS** of up to 200MW/800MWh capacity.

The AC-coupled BESS option would be located within the 'AC-coupled zone' identified in this modification report. This zone is situated near the approved construction site facility and storage area that is adjacent to the solar farm access. The AC-coupled zone may also include a new substation and connection options to either the on-site Limondale substation or the Balranald Substation (or an alternate future connection option). The AC-coupled zone represents a broader area within which the AC-coupled layout would be constructed. It consists of two areas, one north and one south of the site access road.

At this stage a fixed location for the AC-coupled layout is being evaluated by LSF and would be selected subject to detailed design, and consideration of commercial and operational factors. This modification report has been prepared to assess potential worst-case impacts associated with the AC-coupled layout being positioned in any location within the nominated AC-coupled zone.

Regardless of its position within the identified zone, the AC-coupled Li-ion BESS option would consist of up to 360 (20 foot) battery containers and associated infrastructure i.e., BESS HVAC, inverters, transformers and connecting electrical wires.

The AC-coupled zone represents an area of ~307,810 m² whilst the AC-coupled layout (i.e., the actual surface area of the AC-coupled Li-ion option once constructed) would cover a smaller area within the AC-coupled zone.

An **AC-coupled Flow** BESS of up to 200MW/800MWh.

This AC-coupled Flow BESS option would be located within the AC-coupled zone identified in this modification report.

Regardless of its position within the identified zone, the AC-coupled Flow BESS option would consist of 48 flow energy centres and associated infrastructure, including power train enclosures, external anolyte and catholyte storage tanks (25 ft) and fluid pumps located within secondary containment basins, HVAC (if required), inverters, transformers and connecting electrical wires.

Each flow energy centre contains 10 power trains and associated electrical equipment, housed within an enclosure measuring ~15 ft high on the eave and ~19 ft high on the peak. A total of 480 individual power trains are proposed (10 power trains per energy centre x 48 energy centres proposed).

The AC-coupled Flow layout (i.e., the actual surface area of the AC-coupled flow option once constructed) would cover an area of ~139,718 m².

This submission report aims to:



1) Consider and respond to the issues raised by the public and agencies, in response to the exhibition of the Limondale Solar Farm BESS – Modification 2 report (17 March 2022).

2) Propose actions to address concerns and questions raised by the public and government agencies.

3. Analysis of submissions

The modification report 2 – BESS was placed on exhibition from Wednesday the 25th of May 2022 until Tuesday the 7th of June 2022.

The Total number of submissions received was 10 submissions from Government agencies and none from the general public.

Note 1: At the time of writing this report, the advice from the Rural Fire Service is still outstanding and will be forwarded to us once received by the Department.

Note 2: No submission has been received from special interest groups.

Note 3: No member from the General Public, Local government or Government agencies have objected the project for an on-site BESS.

| Number of submission received | |
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| Category | Number of responses received |
| General Public | No submission received |
| Public Agencies: Transport for NSW Hazards Transgrid DPI Agriculture Heritage NSW DPE Water Crown Lands Fire and Rescue NSW Biodiversity and Conservation Division | 9 submissions received, one from each agency identified |
| Council/s: Balranald Shire Council | 1 submission received |

The submission can be categorised in 5 categories:

- Traffic Management
- Waste Management
- Local resource Management
- Catering/accommodation of the workforce
- Fire and Rescue Management

4. Actions taken since exhibition

Since exhibition concluded, RWE engaged consultation with parties who required complementary information:

| Organisation | Date | Comments |
|-------------------------|---------------------|---|
| Fire and Rescue NSW | Meeting 05/07/22 | RWE has reviewed the Hazardous Industry Planning Advisory, Paper No 2, Fire Safety Study, Guidelines and arranged a meeting with the FRV NSW team to discuss the current requirements and approach. That meeting took place on the 5 th of July and the measures proposed in Table 5 were discussed and agreed, further the general approach to consultation and assessment was discussed and RWE's development approach has been adjusted to ensure appropriate consultation. |
| Balranald Shire Council | Call 28/06/22 | RWE called Balranald shire council on the 28 th of June and discussed their submission to RWE clarifying several points. Following that call an email to Balranald Shire council on the 30 th of June summarised the proposed conditions discussed in Table 5. A response from Balranald council via email indicated these represented a satisfactory outcome for council. |
| Transport for NSW | Call 05/07/22 | RWE had a brief phone call with Transport for NSW on the 5 th of July. The proposed condition in Table 5 were discussed and it was agreed that they were a satisfactory response. |

5. Response to submissions

| Category | Summary of the submission | RWE Response |
|-------------------|--|--|
| Transport for NSW | <ul style="list-style-type: none"> Schedule 2 Condition 7 requires the preparation of a TMP. An updated TMP is to be prepared | <ul style="list-style-type: none"> Prior to construction of the BESS, RWE agrees to conditional consent and will update the existing Traffic Management Plan to the satisfaction of Transport for NSW. Traffic routes will be similar to the ones used for the Limondale Sun Farm (SSD-8025) and volumes are expected to be lower than required for the Sun Farm. No road network augmentation or additional access is required for the BESS. If the flow battery option were to be selected (largest footprint scenario), the impact on local traffic would stay well below our initial submission of 54 Heavy Vehicle movements per day during construction; |
| Hazards | <ul style="list-style-type: none"> No additional queries regarding MOD2. | <ul style="list-style-type: none"> NA |
| Transgrid | <ul style="list-style-type: none"> The customer will need to engage with Transgrid via executing a connection process. | <ul style="list-style-type: none"> RWE will engage with Transgrid via executing the connection process. |

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| DPI Agriculture | <ul style="list-style-type: none"> No additional comment. | <ul style="list-style-type: none"> NA |
| Heritage NSW | <ul style="list-style-type: none"> No additional impact. If unanticipated Aboriginal cultural Heritage is identified during works, this would be managed under existing HMP or EMM. | <ul style="list-style-type: none"> NA Noted |
| DPE Water | <ul style="list-style-type: none"> No further comments. | <ul style="list-style-type: none"> NA |
| Crown Land | <ul style="list-style-type: none"> No further comment. | <ul style="list-style-type: none"> NA |
| Fire and Rescue NSW | <ul style="list-style-type: none"> A Comprehensive Fire Safety Study is to be developed in accordance³ with HIPAP No.2 and is to meet the requirements of FRNSW The FSS is to consider the operational capacity of local fire agencies. | <p>RWE agrees to conditional consent to the following actions:</p> <ul style="list-style-type: none"> Prior to construction of the BESS, RWE will develop a comprehensive Fire Safety Study in collaboration with appropriate fire agencies to the satisfaction of Fire and Rescue New South Wales. Prior to the construction of the BESS, RWE will amend the existing Emergency Response Plan to integrate the BESS development to the satisfaction of Fire and Rescue New South Wales. |

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| | <ul style="list-style-type: none"> • That the development of the FSS be a condition of consent. • That a comprehensive ERP is developed in accordance with HIPAP No.1 • That an Emergency Service Information Package is prepared in accordance with FNNSW Safety Guidelines. | <ul style="list-style-type: none"> • Prior to the construction of the BESS, RWE will develop an Emergency Service Information Package in collaboration with appropriate fire agencies to the satisfaction of Fire and Rescue New South Wales. |
| Biodiversity and conservation Division | <ul style="list-style-type: none"> • No Additional Impact | <ul style="list-style-type: none"> • NA |
| Balranald Shire Council | <ul style="list-style-type: none"> • Council does not believe that the original strategy adequately catered for the impacts of the workforce and further refining of the strategy is required. • Road building and hardstand material consumption assessment and impact/s on locally available resources is absent in the report | <p>RWE agrees to conditional consent to the following actions:</p> <ul style="list-style-type: none"> • Prior to the construction of the BESS, RWE will amend the existing Accommodation Strategy Plan to the reasonable satisfaction of the Balranald Shire Council. The Sun Farm construction required accommodation/catering for 250 workers while the BESS development will only involve up to 40 technicians. The types of workers will mostly be trades people and will be accommodated between Balranald and Swan Hill, likely in a mix of permanent housing and motel accommodation. Once the exact size and details of the workforce are known RWE will assess the availability of housing and motel supply and develop the Accommodation Strategy Plan depending on availability of accommodation. |

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| | <ul style="list-style-type: none">• The modification report does not speak to waste management in any real sense. Change to waste management should be appropriately addresses in this modification report. | <ul style="list-style-type: none">• Prior to the construction of the BESS, RWE will consult with council regarding the required materials for the hardstand and will seek where possible to select materials that will not affect the councils road building efforts. The source of the materials for the construction of the pad is yet to be determined however we expect there would be sufficient time to source those from the most efficient location.• Prior to the construction of the BESS, RWE will assess local recycling streams and produce a Waste Management Plan to the satisfaction of Balranald Shire Council. RWE commits to assess where waste diversion is possible and to divert all economically feasible streams. We note that the battery facility will produce considerably less waste than the solar farm. Many of the elements are delivered to site already constructed and as there is no panel packaging a large source of waste is avoided. |
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6. Updated Project Justification

The overall objective of the proposed Modification is to construct and operate a BESS in the Project Area, to provide the facility with dispatchable firming resources and enhanced electricity grid and service capabilities, while also avoiding and minimising environmental, community and landholder impacts.

As detailed in the Modification Report, the project has a number of benefits, in summary it will:

- Contribute to the strategic objectives and targets of the NSW and Commonwealth governments for renewable energy storage;
- Contribute to increased energy security of the National Electricity Market (NEM) through valuable contributions to dispatchable energy storage; and
- Provide ongoing economic benefits for regional NSW through both the diversification of regional income streams and provision of employment opportunities during construction and throughout the operation of the Project.

The strategic objectives and targets of the NSW and Commonwealth governments for renewable energy storage is further addressed in Chapter 2.

The proposed Modification would result in an acceptable level of impact that can be maintained consistent with the existing development consent. This statement is consistent for either AC-coupled or DC-coupled options. Further the response to Modification Report has demonstrated that the project impacts are not seen as significant by the community, evidenced by the lack of responses. This is not surprising given that this modification remains substantially the same as the existing project.

The response from Balranald Council, FRV NSW and Transport for NSW demonstrate that the project still requires further definition within the bounds of the Modification Report and that some technical details remain to work through. RWE acknowledges this work and seeks to work with the agencies to ensure a best for project and community outcome.

The submissions received and proposed conditions do not impact RWE's view that project is consistent with ecologically sustainable development principles outlined in the submission report and that the project remains consistent with government policy

7. References

State Significant development guidelines – preparing a submission report and its appendix C. November 2021. NSW Government.

Hazardous Industry Planning Advisory Paper (HIPAP) No.2

Hazardous Industry Planning Advisory Paper (HIPAP) No.1

Emergency services information package and tactical fire plans, NSW Government. V02. 07 January 2019

Hazardous Industry Planning Advisory, Paper No 2, Fire Safety Study, Guidelines – Jan 2011

Appendix 1 : Submissions register

| Number of submission received | | |
|--|---|--|
| Category | Number of responses received | Sections where issues addressed in submission report |
| General Public | No submission received | NA |
| Public Agencies: Transport for NSW Hazards Transgrid DPI Agriculture Heritage NSW DPE Water Crown Lands Fire and Rescue NSW Biodiversity and Conservation Division | 9 submissions received, one from each agency identified | Section 5. |
| Council/s: Balranald Shire Council | 1 submission received | Section 5. |

Appendix 2: Updated mitigation measures

The submission report does not propose additional mitigation measures. RWE would propose the conditions outlined in Table 5.

Appendix 3: Additional information

No additional information is provided

Should additional information be required it can be requested from the proponent