

Barnawartha Solar Farm

Preliminary Construction Environmental
Management Plan (CEMP)



1. Construction Activity

The CEMP includes a description of all activities which are to be performed and are clearly outlined. The EPC Contractor will be required to produce a site and project specific CEMP, which addresses all Construction, Environmental, Safety, Traffic, Waste, and Incident Management requirements.

The CEMP will also address any specific requirements of the DA Consent Conditions for the project and hence will be amended prior to the commencement of construction.

Construction Phases

The Barnawartha Solar Farm will be broken up into key phases:

- Site mobilisation and the preparation of civil/mechanical works
- Electrical installation of the array including DC, AC, and medium voltage (MV) infrastructure
- Grid interconnection activities
- Installation commissioning, usually involving cold, warm, and hot commissioning stages and
- Demobilisation and site restoration.

Construction Activities

The Barnawartha Solar Farm will undergo the following construction activities:

- Early works including identification of any existing services
- Site preparation prior to erection of site fences
- Site earthworks including grading, drainage, trenching, piling and road construction
- Material deliveries, including tracker components, solar modules, electrical cables, concrete deliveries, electrical switchgear, and site buildings, including permanent infrastructure
- Installation of the tracking piers and array module mounting structures
- Module assembly and wiring of string cabling to DC combiner boxes
- Electrical distribution wiring, buried and in conduits
- Installation of electrical infrastructure foundations
- Installation of electrical infrastructure to the foundations
- Fit-off of all electricals to allow commissioning activities
- DNSP to erect new assets for interconnection
- Construction of interconnection assets owned by the Network Service Provider
- Grid connection and commissioning activities
- Site remediation and demobilisation.

Scheduling

The scheduling of detailed work tasks will be developed by the EPC Contractor, it is expected that the overall project delivery programme will take approximately 6 to 9 months:

- Mobilisation, earthworks, and site establishment; 1 to 2 months
- Commencing following site establishment; the piling and mechanical installation including module installation; 2 months
- DC electrical installation works; 1 to 2 months
- Central inverter, MV transformer and MV connection station installation; 2 weeks
- MV cabling, system earthing, and communication system connections and testing; 1 month
- SCADA installation, testing and commissioning prior to energisation; 6 weeks

These works are not strictly consecutive and some of these works can and will be progressed and completed in a concurrent manner where practicable.

The energisation and network testing activities are required to be coordinated and scheduled with the DNSP.

Construction Footprints

There are several activities to be undertaken which will require some form of earthworks including:

- Site access and cross-over entry to the site
- The preparation and construction of temporary and permanent access roads and laydown areas within the project site
- Foundation works for the major electrical infrastructure
- Trenches for electrical distribution and earthing systems

Temporary Facilities

The Barnawartha Solar Farm compound will include the following temporary facilities during the construction period:

- Site office
- Site lunchroom
- Site ablution facilities
- Site equipment storage containers
- Small portable diesel generator for powering the temporary facilities
- Parking area for vehicles and plant
- Laydown areas for equipment deliveries

Hours Of Operation

The planned hours of operation for the construction phase are seven days per week:

- Monday to Saturday 6:30 am until 6:30 pm
- Sunday 7:00 am until 4:00 pm

Numbers of Workers

The number of workers on site during the construction phase will be limited to a maximum of forty workers on-site at any one time.

2. Agency Consultation

The CEMP requires the proponent show evidence of any consultation with public and government bodies to meet obligations.

Key Personnel

- Project Manager(s)
- Construction Manager
- Site Supervisor
- WHSEQ Officer

3. Incident Management

The CEMP covers the potential to cause an environmental impact and subsequent reporting under the WHSEQ program, which incorporates environmental risk.

4. Environmental Performance

The Barnawartha Solar Farm Project construction work will be in accordance with environmental protocols, to ensure that the correct measures are taken to address any potentially adverse environmental impacts that may be identified.

Criteria

- Environmental Compliance & Monitoring System
- Legal Compliance
- Best practice environmental management
- Environmental complaints
- Incidents
- Non-conformance
- Audit & Inspection

There are no expected environmental impacts as per typical construction works of this type, i.e., a small solar farm on a construction site that is not requiring any major earthworks such as cut, fill or grading. Any environmental impacts that may arise will be mitigated by the following plans.

5. Soil Erosion and Water Impact Plan

- Develop a site erosion and sediment control plan
- Provide appropriate sediment fences or other applicable control measures
- Provide catch drains as required

6. Ground Cover and Dust Management Plan

Dust Suppression

- Watering for dust suppression along access roads and high traffic areas
- Limit vehicle movements on the site
- Minimise ground disturbance
- Ensure any stockpiles of material are bunded and covered

7. Construction Noise Management Plan

This requires identification of mechanical tasks involving machinery that have the potential to create noise on and near the site.

- Develop a construction noise management protocol
- Minimise impact noise wherever possible
- Use broadband reverse alarms in lieu of traditional high frequency reverse alarms
- Operate plant in a conservative manner and shutdown when not in use

8. Traffic Management Plan

A site-specific Traffic Management Plan will be prepared by the EPC Contractor and approved prior to commencement of any site construction works.

Construction Phase Impact

- The primary construction phase of the project (defined as the period where heavy vehicle access will be required) will take approximately 4 months with an estimated daily average of 25 light vehicle and 5 heavy vehicle movements.
- During the short peak construction periods it is projected that up to an additional 30 vehicle movements per day may eventuate.
- Overall, the volume of traffic is not expected to have any material impact on the operation of the road network.

Distribution of Traffic During Construction Phase

- Heavy vehicle access (deliveries) would typically be from 7:30 am until 10:30 am
- Light vehicle access would typically be between 6:00 am and 7:00 am (arrival of workers) and between 5:00 pm and 6:30 pm (departure of workers)
- The total number of heavy vehicles accessing the site over the duration of the project construction phase would be approximately sixty.

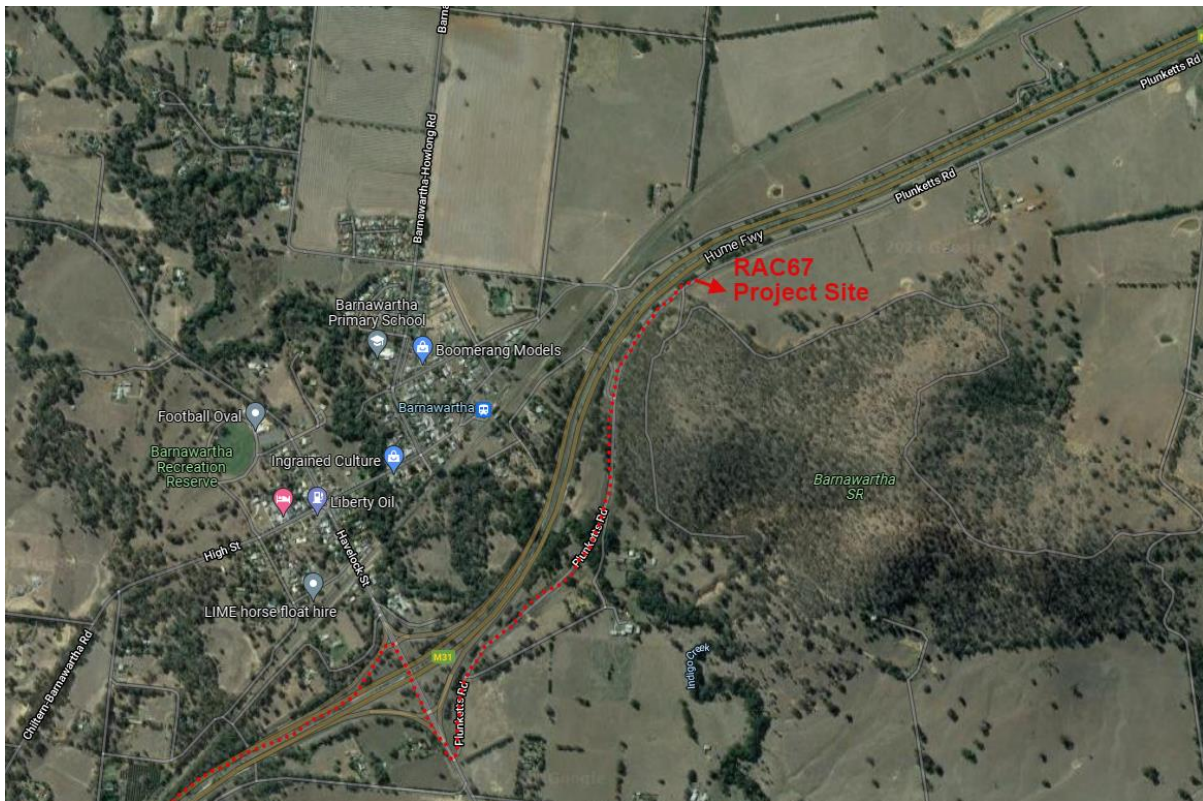
Operational Phase Impact

- There will be negligible impact on the traffic of the local road network, which is typical for a solar project of this size.
- The routine 6-monthly operational and maintenance program will involve up to four O&M technicians travelling to the site, representing a maximum of four vehicle movements per year.
- Other (as required) operational activities such as panel cleaning or replacement, will have negligible impact, regarding traffic to the site. These activities would be infrequent and unlikely to occur more than once annually.

The traffic impacts from the construction and operation of the solar farm will be comfortably accommodated within the existing road network and should not cause any unreasonable impacts to the road infrastructure or road safety.

Preferred Access Route

Heavy vehicles arriving with deliveries from Melbourne will access the site from the Hume Freeway, via the Indigo Creek Rd offramp, then on to Plunketts Rd, as per the route shown below.



Map 1: Southern Access Route from Hume Freeway

The split of vehicle direction to the site is likely to be 70 to 80% of heavy vehicle traffic from the south (Melbourne) and the remaining from the north (Wodonga/Albury/NSW). The light vehicle traffic will be more evenly distributed, approximately 60% from the south and 40% from the north. For comparison, the north and south Hume Freeway interchanges are shown on the map below.



Map 2: North and South Hume Freeway Interchanges for Site Access

9. Emergency Response Plan

An Emergency Response Plan will be developed by the EPC Contractor and will be displayed in all site buildings and explained in full to all personnel during induction.

10. Waste Management Plan

Building Barnawartha Solar Farm will generate a range of waste materials that must be disposed of. This includes an identified range of liquid and non-liquid waste materials generated during construction.