

Statement of Environmental Effects

GIDGINBUNG SOLAR FARM, TAYLORS LANE TEMORA

Hydro Power Pty Ltd

Contents

1	Executive Summary.....	2
2	Ownership Changes	3
3	Consultation.....	3
3.1	Landowner	3
3.2	Essential Energy	3
4	Design Changes	4
5	Development Consent Conditions	5
5.1	General.....	5
5.2	Prior To Construction	5
5.3	During Construction.....	5
5.4	Post Construction.....	6
6	Statement of Environmental Effects (Geolyse).....	7
6.1	Proponent	7
6.2	Statutory Planning	7
6.3	Development Site.....	7
6.4	Development.....	7
6.5	Consultation	7
6.6	Environmental Impacts	8
6.7	Mitigation Measures.....	8
7	Conclusion.....	9

1 Executive Summary

The Gidginbung Solar Farm ("GSF") at 124 Taylors Road has a current development consent (DA 23/2016) for construction of a 15MWp solar photovoltaic generation facility. Due to recent discussions with stakeholders, including the new landowner to the south of the site and Essential Energy, we propose to modify the design to increase the investment size of the solar facility to achieve higher greenhouse emissions savings without detriment or diminishment of the original environmental conditions.

The modified solar array is substantially the same development that was approved. The modified array comprises the same elements

- Photovoltaic (PV) modules
- Single-axis tracking, oriented in north-south rows with the same height
- Containerised inverter and transformer stations within the site
- 22/66kV substation, in the same location, connecting to the Essential Energy 66kV distribution network
- External security fence, internal access roads and entrance off Taylors Road
- Retention of all mitigation measures from the Statement of Environmental Effects (Geolyse, March 2016) and Development Consent (DA 23/2016)

The new proposed design increases the output from 15MWp to 25MWp, but due to use of higher efficiency PV modules (which convert more of the sun's radiation to energy) and closer packing of the mounting system, the plant footprint will rise from 44.8 ha to 53.2ha.

The modification of the Gidginbung Solar Farm, as proposed, will be substantially the same development as the development for which the consent was originally granted, and the environmental impact of the modification will be minimal. Pursuant to s.96(1A) of the Environmental Planning and Assessment Act 1979, the proponent is therefore seeking Council consent to approve the modification.

2 Ownership Changes

At the time of the original Development Application, the site was owned by Mittle Holdings Pty Ltd. The site has since been purchased by Hydro Power Pty Ltd.

The original Development Application was submitted by a consortium of Saferay, IB Vogt, Epho and Hydro Power in 2016 under the name Gidginbung Solar Farm Pty Ltd. Hydro Power Pty Ltd has subsequently taken full ownership of the development from the consortium partners, including all designs and intellectual property, and 100% ownership of Gidginbung Solar Farm Pty Ltd.

Accordingly, the revised Development Application form correctly references Hydro Power Pty Ltd as both the Applicant and as provider of Owner Consent.

3 Consultation

Since the current development consent was received, the proponents of the Gidginbung Solar Farm have been in ongoing dialogue with stakeholders to improve the outcomes for all parties.

3.1 Landowner

The land to the south of the site, and nearest to the solar farm, has recently changed hands and we have approached the new owner seeking his input on our new proposed design.

In contrast to the previous landowner, who had raised some objections with regard to visual amenity, the new landowner is a supporter of the solar farm. In particular, he is satisfied that the visual impact will not present a problem and he supports locating solar modules closer to the residence. As a consequence, the new layout reduces the minimum distance from the residence to the closest solar modules from 300m to 200m. The screening planting as contemplated in the original design and Development Consent will be retained in full.

3.2 Essential Energy

We have been in dialogue with Essential Energy to progress the grid connection application under the National Electricity Rules, which includes site conditions for design, construction and operation of the connection point and switchgear required for access to the 66kV distribution network running adjacent to the north-east corner of the site.

Essential Energy have advised that the capacity of the 66kV distribution network for connection of a solar asset at the site is 21.3MVA.

4 Design Changes

A summary of the design is listed below:

Original design per DA 23/2016	Proposed design	Comments
15MWp	25.6MWp	66% higher
48,960 solar modules	71,148	46% more
300 watt panels	360 watt panels	16.7% higher
30 GWh/year output	50 GWh/year output	66% higher
	5m row spacing	More tightly packed to reduce land area
Containerised inverter station	Containerised inverter station	No change
9 inverter stations	7 inverter stations	Fewer, for reduced noise and visual impact
Single-axis tracking system		No change
2.2m full tilt (max) height		No change
Security fence		No change
Compacted access internal roads		No change
Site access off Taylors Road		No change
44.8 ha fenced area		
22/66kV step-up transformers and substation		No change

Drawing “J1795 100-P1 Concept Site Layout (Gidginbung Solar Farm)” shows the revised layout.

The most significant change has been to move to newer, high efficiency PV modules that use the latest technical advances to increase the conversion rate of electricity. Simply, more electricity is generated from the same physical area. The PV panels still look the same, and have the same form factor and same basic technical underpinnings to silently and reliably convert sunlight into electricity.

The new panels also allow a more efficient configuration of the field wiring which reduces cabling costs and parasitic losses.

The new panels also enable use of more modern, higher capacity inverters. The number of inverters has been reduced from nine (9) to seven (7) with a commensurate reduction in noise and visual impact.

Retention of the same form factor means that the same single-axis tracking equipment will be used. Apart from the increased land footprint, the solar farm will look identical to that put forward in the original DA 23/2016.

5 Development Consent Conditions

The notice of Development Consent (DA 23/2016) included a number of conditions requiring compliance. Those conditions directly or indirectly impacted by the proposed design change are identified below:

5.1 General

No impact or alterations to conditions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12.

5.2 Prior To Construction

No impact or alterations to conditions 13, 14, 15, 16 or 18

Condition 17: Site Office

We note the requirement for:

"A small site office including amenities/staff facilities (accessible) shall be provided on-site for the use by maintenance staff/contractors. A conventional septic tank with a 20m absorption trench may be utilised to dispose of any effluent produced onsite. An amended site plan shall be submitted to and approved by Council, prior to any work commencing."

Amenities for the construction of the solar farm will be provided by the construction contractor as relocatable site offices, including ablutions. Waste will be regularly removed from site by a licenced specialist for correct disposal at an approved dump facility.

Operation of the solar farm will be autonomous, with no permanent staff or contractors. Real-time monitoring will be carried out remotely, with faults attended by local contractors under an overarching Operations and Maintenance agreement.

We propose to use temporary "portaloo" style ablutions for the site both during construction and operation. Written advice received from Essential Energy, as well as common practice from O&M contractors operating other similar sites indicate they are satisfied with this approach. We believe this satisfies the requirements of Development Consent Item 6.

Adopting this solution reduces the capital cost of the solar farm while providing adequate toileting facilities for users. Waste will be regularly removed from site by a licenced specialist for correct disposal at an approved dump facility. Provision of this service will be responsibility of the Operations & Management subcontractor.

We therefore seek modification to this condition to

- Delete the requirement for a small site office
- Delete the requirement for a conventional septic tank

5.3 During Construction

No impact or alterations to conditions 19, 20, 21, 22, 23 or 24.

5.4 Post Construction

No impact or alterations to conditions 25, 27, 28, 29, 30, 31 or 32

Condition 26: Landscape Strategy

As stipulated in the Development Consent, a minimum of four (4) metres of landscape screening around the full property boundary will be provided.

Following consultation with the new landowner, who owns the property with the residence adjacent to the south-west corner of the site, we have amended the layout as shown on the drawing "J1795 100-P1 Concept Site Layout (Gidginbung Solar Farm)".

This new layout

- Complies with the requirements of the new landowner
- Does not introduce new or greater environmental impact than the original proposal
- Meets the grid network connection requirements by Essential Energy
- Retains all environmental controls

The layout does reduce the distance to the residence owned by the new landowner from 300m to 200m. This will be the worst case scenario, and as the design evolves we will endeavour to increase this distance if at all possible.

6 Statement of Environmental Effects (Geolyse)

The Development Application was accompanied by a Statement of Environmental Effects, prepared by Geolyse for Epho Pty Ltd (the original lead applicant) in March 2016. This section describes how the revised design is similar to, or departs from, the original concept.

6.1 Proponent

(Section 1.3, page 2)

The proponent (Gidginbung Solar Farm) remains as the proponent, but Hydro Power Pty Ltd has taken the lead role in developing, building and finally owning the power plant.

Hydro Power Pty Ltd has, or has access to, all the necessary resources, skills and expertise needed to complete the development, construction and long-term operation of the plant.

6.2 Statutory Planning

(Section 2, pages 4-5)

No statutory planning aspects are impacted by the revised design.

6.3 Development Site

(Section 3, pages 6-11)

No aspects of the development site information are impacted by the revised design.

6.4 Development

(Section 4, pages 12-18)

All aspects of the Development as described in this section remain consistent with the original design, except where

- References to 15MWp should now read 25MWp
- The design may use monocrystalline or multicrystalline photovoltaic cells within the modules, depending on the final equipment supplier. This does not change any environmental aspects; in particular there is no change to glare or reflective impact
- The inverters will still be central containerised type, but we expect to reduce the number from nine (9) to seven (7) due to availability of larger capacity and 1500V-capable inverter switchgear
- The area required for all infrastructure will increase from 44.8ha (see s4.3, p13) to 53.2ha
- Landscaping will be of the type as specified, including the 4m screening planting around the entire site per the Development Consent

6.5 Consultation

(Section 5, p19)

Stakeholders added to the list include Essential Energy and the new owner of the property to the south of the solar farm.

6.6 Environmental Impacts

(Section 6, pages 20-52)

All aspects of the Development as described in this section remain consistent with the original design, except where

- Glare from outside the solar farm will be significantly attenuated (if not eliminated) by the 4m screening planted around the entire site as per the Development Consent. The additional footprint of the solar array will not produce additional glare to any of the observation points shown on p24
- Similarly, visual amenity is expected to be the same or reduced with the new design and perimeter landscape screen planting
- Section 6.2.6 "Mitigation Measures" identifies a 300m minimum distance from the solar array to the nearest residence. This measure was put in place due to concerns from the previous owner. The new landowner has been consulted and supports the new reduced minimum distance of 200m
- The increased footprint will not impact the drainage, flooding or water quality. The stormwater retention basins at the south-west corner of the property will be retained
- The total number of trucks bringing materials to site will be greater due to the increased size, but the traffic density (ie movements per day) will remain unchanged. There should be no noticeable change to daily traffic congestion beyond that described in the original Environmental Effects Statement
- Noise from the inverters at the solar farm boundaries is expected to decrease, due to the reduced number of inverters
- No additional impact is expected on fauna and flora, as the expanded footprint from the revised design occur wholly within the farmed portion of land
- Social and economic positive outcomes will be enhanced due to the higher economic investment in the project, with associated employment and local sourcing of services

6.7 Mitigation Measures

(Section 7, pages 53-59)

All of the mitigation measures identified in the original Statement of Environmental Effects will be implemented in full.

7 Conclusion

The modification of the Gidginbung Solar Farm, as proposed, will be substantially the same development as the development for which the consent was originally granted, and the environmental impact of the modification will be minimal. Pursuant to s.96(1A) of the Environmental Planning and Assessment Act 1979, the proponent is therefore seeking Council consent to approve the modification.