

# Bamarang Gas Turbine Facility

## Application for Modification of Concept and Project Approval

### Background

Delta Electricity has been granted approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of a gas turbine power generation facility at Bamarang (the Bamarang Gas Turbine Facility). The facility approved by the Minister (the Approved Project) comprises two stages as follows:

- Stage 1 - construction and operation of an open cycle gas turbine (OCGT) facility; and
- Stage 2 – construction and operation of a combined cycle gas turbine (CCGT) facility.

Details of the Approved Project are summarised in **Table 1**. Depending upon electricity demand and other power generation developments in NSW, the Approved Project could be implemented in two stages, as envisaged in the concept design, or proceed directly to Stage 2. The Stage 1 plant would have a power generation capacity of approximately 300 MW, whilst the Stage 2 plant would have a capacity of approximately 400 MW.

**Table 1: Existing approvals for the Bamarang Gas Turbine Facility**

Approval	Application Number	Date of Approval	Works Covered by the Approval
Concept Approval for Stages 1 and 2	06_0029	27 February 2007	Stage 1 – Construction and operation of an open cycle gas turbine facility, including the construction and operation of a transmission line, gas supply, metering and compression infrastructure. Stage 2 – Construction and operation of a combined cycle gas turbine facility and all water supply infrastructure.
Project Approval for Stage 1	06_0029	27 February 2007	Stage 1 – Construction and operation of an open cycle gas turbine facility, including the construction and operation of a transmission line, gas supply, metering and compression infrastructure.
Project Approval for Stage 2	08_0021	29 October 2008	Stage 2 – Construction and operation of a combined cycle gas turbine facility and all water supply infrastructure.

The approval for Stage 1 includes construction and operation of a transmission line (**Table 1**). The approved transmission line, which was assessed in the Part 3A Environmental Assessment prepared for the Stage 1 Project Approval, is a 132 kV line connecting the Bamarang Gas Turbine Facility to the existing Integral Energy grid at West Nowra. This 132 kV line would facilitate the transmission of electricity generated by the Stage 1 plant but might constrain the security and reliability for operating up to the full capacity of Stage 2 works. Delta Electricity has therefore proposed to establish an additional higher voltage electricity grid connection to support the Stage 2 plant.

The TransGrid Kangaroo Valley-Canberra 330 kV Transmission Line (Line 6), located approximately five kilometres to the west of the Bamarang Gas Turbine Facility, has been identified as a feasible high voltage grid connection point. A range of alternative options for connecting the Bamarang Gas Turbine Facility to Line 6 have therefore been investigated and a preferred option identified. The preferred option for the

additional high voltage grid connection is considered to constitute a modification to the Approved Project and is detailed below.

## Proposed Modification to the Approved Project

The proposed modification to the Approved Project involves construction and operation of a new 330 kV transmission line connecting the Bamarang Gas Turbine Facility to Line 6 as shown in **Figure 1**. The details of the proposed modification are summarised in **Table 2**.

**Table 2: Details of proposed transmission line to connect Bamarang Gas Turbine Facility to Line 6**

Voltage and Circuit Type	Connection Configuration	Tower Height	Easement Width	Line Length	Associated Infrastructure
330 kV double circuit / single Tower (DCST)	Turn-in/Turn-out connection to Line 6	45 m	60 m	5.2 km	New sub-station located on gas turbine site

The proposed transmission line route traverses a variety of land tenures, including private land holdings and Crown land. Details of the properties and land titles that would be traversed by the transmission line and its associated easement are summarised in **Table 3**.

**Table 3: Land traversed by the proposed 330 kV transmission line**

Lot/DP Number	Land Ownership
Lot 1/DP127462	Delta Electricity (Approved Project site)
Lot 448/DP823265	NSW Government
Lot 7/DP1111395	Private Land Holding (Mr C and Mrs J Poulton)
Lot 6/DP1111395	Private Land Holding (Mr C and Mrs J Poulton)
Lot 1/DP876682	Private Land Holding (Mr MD Colqhoun)
Lot 2/DP876682	Private Land Holding (Enzo Pty Ltd)
N/A	Crown Land west of Colymea State Conservation Area

These land owners have been contacted by Delta and advised that consideration is being given to the possibility of the 330 kV line crossing their land. Contact has also been made with two other land owners – namely Mr and Mrs Charlton on Lot 3, DP876682 and Ms Pauline Brewer on Lot 1, DP1120147 – to advise that the line may pass adjacent to their property. Land ownership is shown on **Figure 1**.

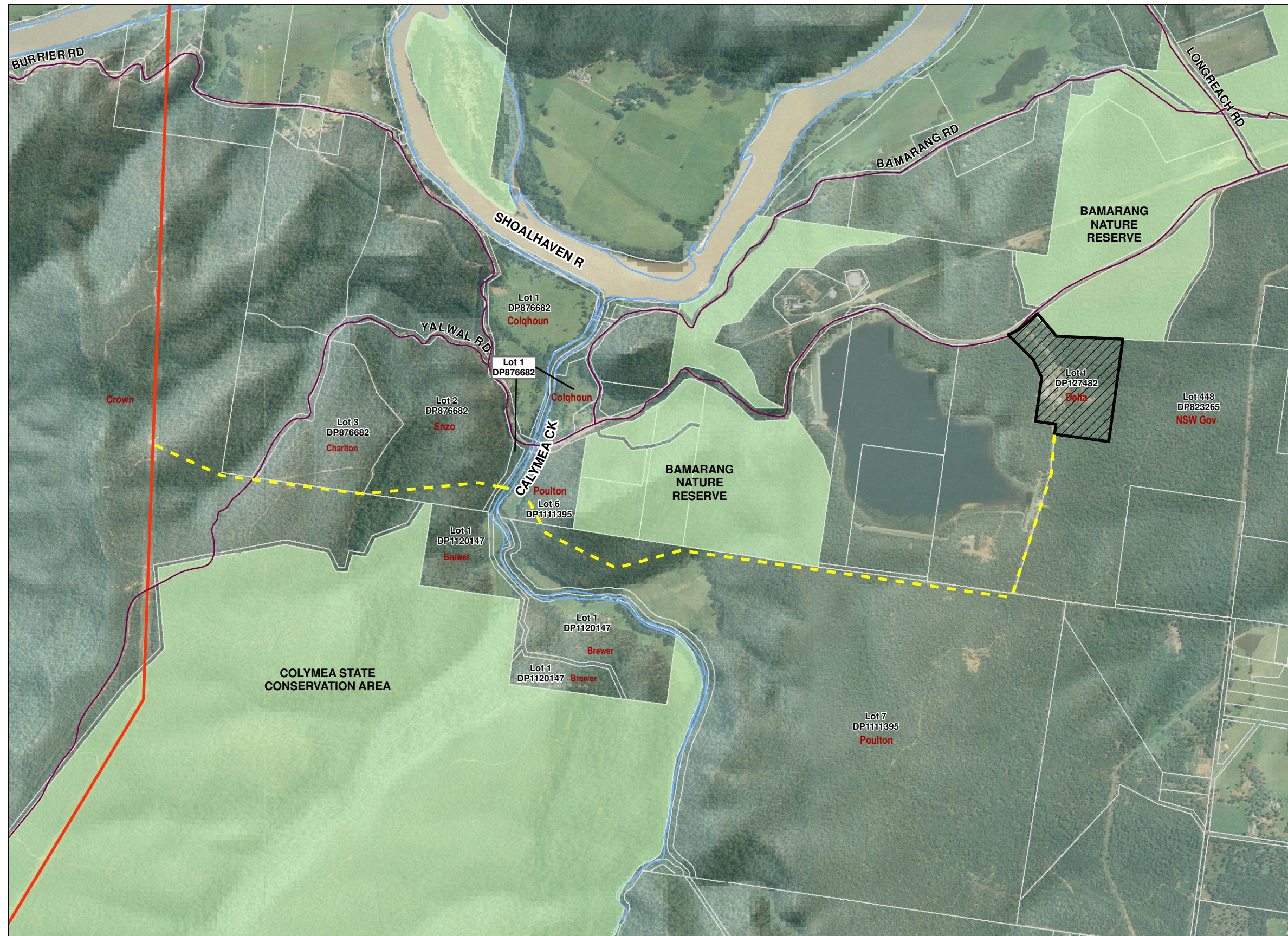
## Application for Modification of Existing Approval

Delta Electricity has examined the proposed changes to the Approved Project and considers that they are not consistent with the current conditions of approval. Delta is therefore seeking a modification of the existing approvals in accordance with Section 75W of the EP&A Act. As the existing approvals allow for the project to either proceed in stages or proceed directly to Stage 2, Delta is seeking a modification to all three existing approvals identified in **Table 1**. Apart from modifying the project description, there may need to modify various conditions of approval to ensure that the option of constructing the 330 kV transmission line is available for both staged implementation of the gas turbine facility and construction of Stage 2 only.

It is stressed that the proposed modification to the Approved project is to allow the construction and operation of an additional grid connection, being in addition to the 132 kV grid connection approved as part

of the Stage 1 works. In particular, the modification, if approved, needs to allow Delta to retain the existing approval for construction of a 132 kV transmission line connecting the Bamarang Gas Turbine Facility to the Integral Energy grid at West Nowra.



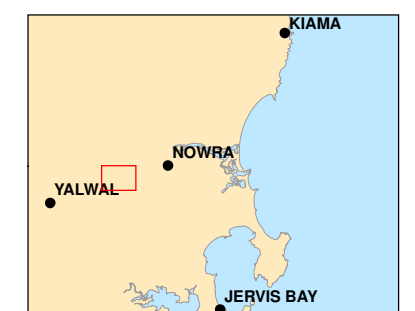
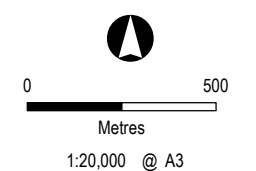


- Legend**
- Proposed 330 kV Transmission Line
  - Existing TransGrid Kangaroo Valley to Canberra 330 kV Transmission Line
  - Roads
  - Waterways
  - National Parks
  - Bamarang Gas Turbine Site
  - Property Boundaries

**Data Sources**

Aerial Photograph - LPI, NSW  
 Topodata - Streetworks  
 Cadastre - LPI, 2007

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## Key Environmental Issues associated with the Proposed Modification

A preliminary assessment of the environmental issues associated with proposed modification was undertaken as part of the transmission line options study. As a result of this assessment, three key environmental issues were identified:

- impacts on terrestrial ecology;
- potential impacts on Aboriginal heritage; and
- visual impacts on the surrounding landscape and rural properties.

The key environmental issues are summarised in **Table 4**. Additional environmental issues identified included potential impacts on or associated with topography and soil landscapes, water quality and hydrology, traffic and transport (including aviation traffic), air quality, land use, non-Indigenous heritage, construction noise and vibration, and bushfire hazard.

Delta is currently undertaking an environmental assessment of the proposed modification to the Approved Project in accordance with the requirements of Part 3A of the EP&A Act. This environmental assessment will include:

- a description of the proposed modification to the Approved Project, including the proposed impact mitigation measures;
- a description of the likely environmental impacts associated with the proposed modification, with particular focus on the key environmental issues; and
- a description of the proposed management measures to address the identified environmental impacts.

**Table 4: Key environmental issues associated with the proposed modification**

Environmental Issue	Details
Terrestrial ecology	The construction and operation of the proposed 330 kV transmission line would require clearing of vegetation. The extent of clearing, and hence the impacts on terrestrial ecology, will depend on the final transmission line design. The potential impacts on terrestrial flora and fauna extend to threatened fauna listed under the NSW <i>Threatened Species Conservation Act 1995</i> (TSC Act) and Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act), and endangered ecological communities (EECs) listed under the TSC Act. Further detailed assessment is required to determine the likely significance of impacts on terrestrial ecology and the opportunities for impact mitigation.
Aboriginal heritage	Preliminary assessment, including a search of the Department of Environment and Climate Change (DECC) Aboriginal Heritage Information Management System (AHIMS) database, indicates that there are a number of known Aboriginal heritage sites in the vicinity of the proposed transmission line route, as well as areas that are likely to be of Aboriginal heritage sensitivity. Further detailed assessment is required to verify the locations of recorded sites and determine the likely significance of impacts on both the archaeological and cultural aspects of Aboriginal heritage.
Visual and landscape impacts	The proposed transmission line route traverses a landscape of potential high scenic value. A number of land parcels in the vicinity of the transmission line route have been classified as "Scenic Preservation Areas" under the Shoalhaven LEP. The transmission line also has the potential to impact the viewsheds of a number of private land holdings. Further detailed assessment is required to determine the likely significance of visual impacts and the opportunities for impact mitigation.