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14 November 2012

REQUEST TO MODIFY A MAJOR PROJECT – BAMARANG POWER STATION (Application no. 06_0029) SUPPORTING INFORMATION

Scope of Modification Requested

Lumo Generation NSW Pty Ltd ("Lumo") requests a modification to the Concept and Project Approvals for the Bamarang Power Station Project to vary the limits of approval such that the Approvals will lapse on 27 February 2019 (that is, 5 years after the current lapse date).

Background

The Bamarang Power Station Project ("Project") will construct a gas-fired power station at Bamarang, NSW, on the site of a disused abattoir. The project has been approved to proceed in two stages:

- Stage 1 will consist of 2 units of gas turbine-generators in open cycle configuration, plus supporting infrastructure including high pressure gas pipeline and high voltage connection to the electricity transmission system.
- Stage 2 will consist of the installation of two heat recovery steam generators and a single steam turbine-generator to convert the power station to combined cycle configuration with an installed capacity of 450MW. Stage 2 will also involve the construction of a water pipeline to supply water to the project.

The Project Approval provides for the developer to proceed straight to Stage 2 without first constructing and operating Stage 1.

The Project was declared a Major Project under section 75B(1)(a) of the Environmental Planning and Assessment Act 1979. It received Concept Approval on 27 February 2007 under Section 75O of the Environmental Planning and Assessment Act 1979 and Project Approval for Stage 1 under Section 75J of the Environmental Planning and Assessment Act 1979 also on 27 February 2007. The limits of approval include a condition that the approval would lapse five years after the date of approval unless works the subject of the project approval for Stage 1 of the development are physically commenced on or before that date. A Modification of Minister's Approval was granted on 23 September 2011 which extended the lapse date for the Approvals to 27 February 2014.

Project Approval of Stage 2 was granted on 29 October 2008. The lapse date for Stage 2 Approval was similarly extended to 27 February 2014 by a Modification of Minister's Approval granted on 23 September 2011.

The Project was devised and initiated by Delta Electricity. The Project (including ownership of the site and the benefit of all associated permits, modifications to permits, agreements, etc.) was sold to Lumo in February 2011 as part of the NSW Government's Electricity Asset Sales process.

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Is the Bamarang Power Station Project still required in New South Wales?

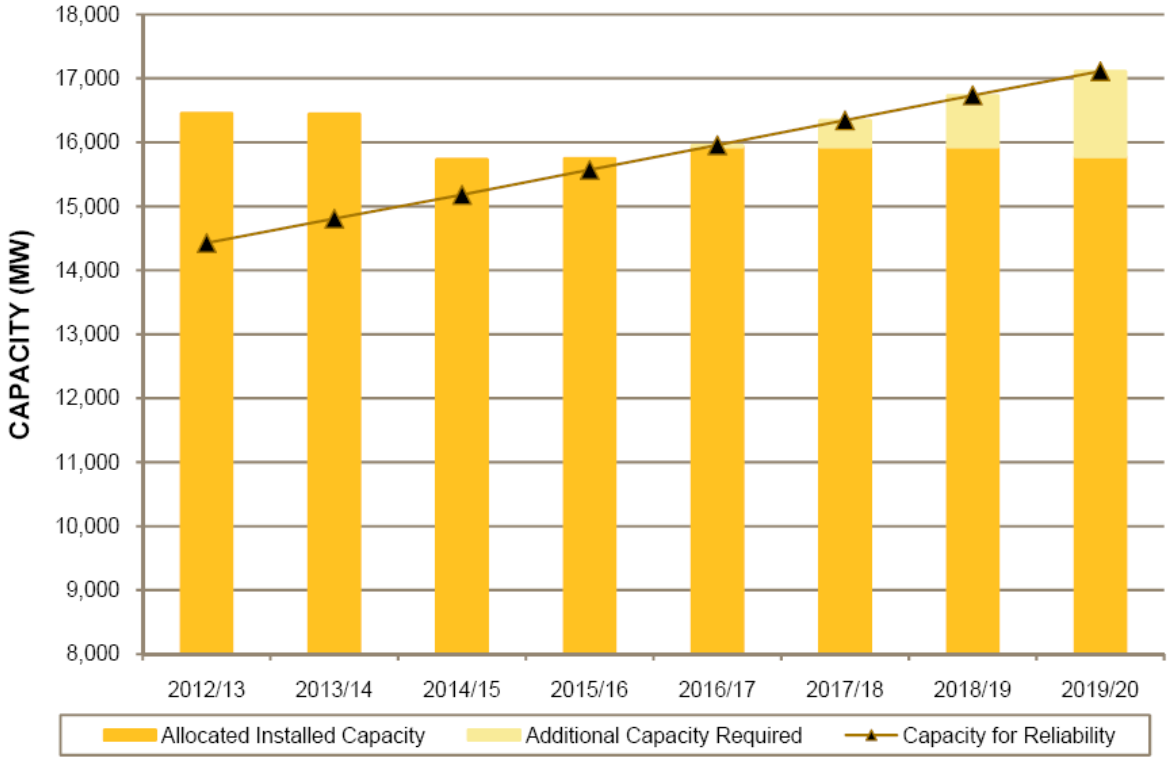
Lumo believes that the Bamarang site is an excellent one for the construction and operation of a new gas-fired power station. New South Wales will need new investment in power generation capacity in the future in order to meet growing demand for electricity by consumers, and gas-fired generation offers the optimum mix of fuel-efficiency, operational flexibility and low greenhouse gas emissions to supply that demand growth. However, the time is not yet right for Lumo to be able to construct the Bamarang Power Station Project and receive an economic return on its investment.

When will construction of the Bamarang Power Station Project be likely to commence?

It will take approximately 3 years to construct the Bamarang Power Station following commencement. In order to estimate the likely date for commencement of construction, Lumo has worked backwards from industry forecasts of when additional generating capacity will be required in NSW.

In June 2011, in support of Lumo's application to extend the lapse date of the Approvals, it referred to the Electricity Statement of Opportunities ("ESOO") published by the Australian Energy Markets Operator ("AEMO") in 2010. The ESOO is prepared and published annually by AEMO, and forecasts future adequacy of electricity supplies based on generation reserve margin (i.e. the margin by which installed generation capacity exceeds expected demand for electricity) by assessing where the Low Reserve Condition point ("LRC") falls below the Minimum Reserve Level ("MRL"). The premise is that additional generation capacity is required at the point at which the LRC falls below the MRL. The 2010 ESOO was the most recently published edition at the time that Lumo made its application.

The 2010 ESOO forecast the LRC to fall below the MRL in 2016/17 under the medium demand growth scenario, and 2017/18 under the low demand growth scenario, as follows:



NSW Summer supply-demand outlook - medium economic growth (Fig 7.3 in 2010 ESOO)

Note that the ESOO analysis focuses on Summer because the demand for electricity is generally higher in summer than in other months, and thermal generation capacities and interconnection power transfer capabilities generally decrease over Summer, leading to an increased likelihood of low reserve conditions.

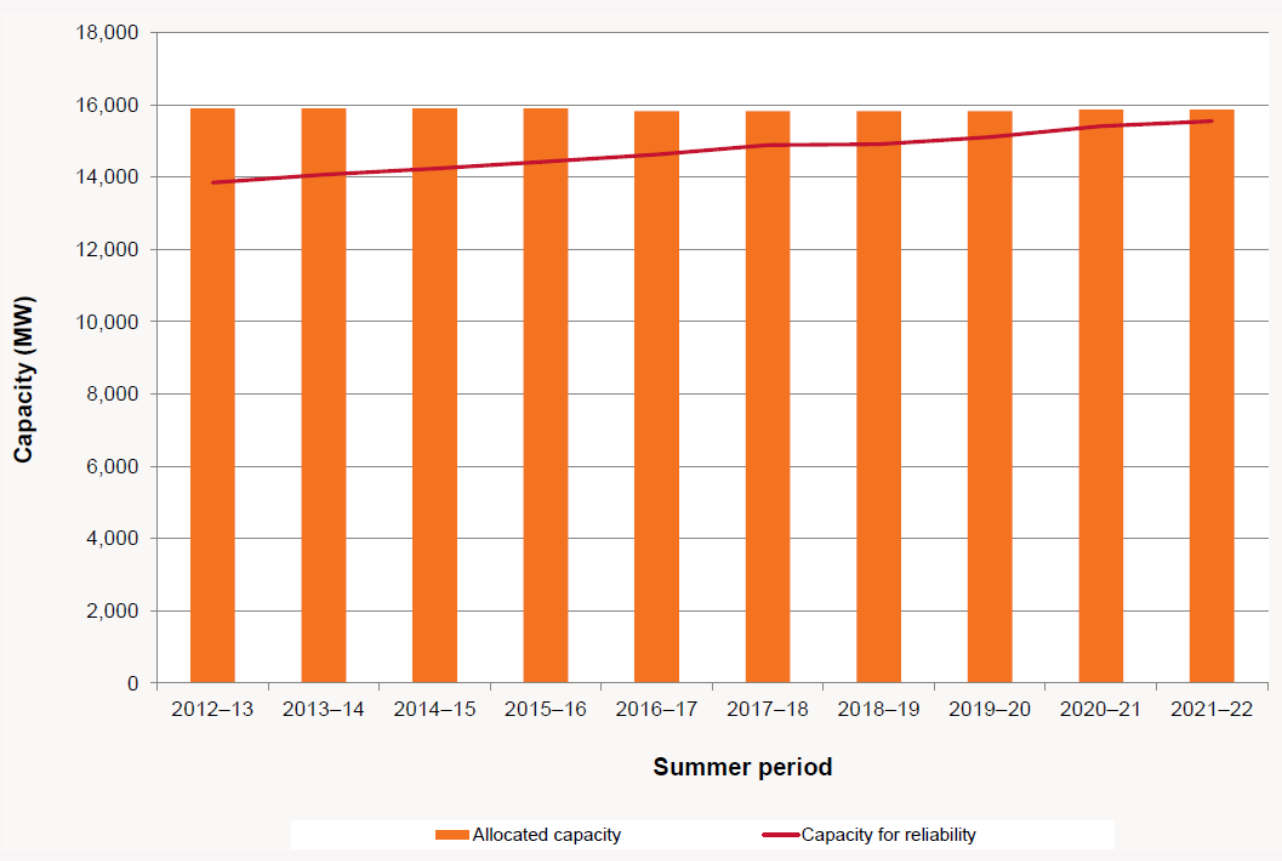
The 2011 ESOO, published by AEMO in September 2011, forecast a further delay of 2 years – to 2018/19 - in the time before the LRC in NSW would fall below the MRL under the medium demand growth scenario.

In August 2012, AEMO published the 2012 ESOO. The opening sentence of this publication states that:

Reduced growth in energy use is expected to defer new generation or demand-side investment for at least four years compared to the forecasts in the 2011 Electricity Statement of Opportunities (ESOO).

Figure 3-6 of the document compares installed generating capacity with the capacity calculated to ensure reliability of supply of electricity to customers. This figure is reproduced, below, and shows that electricity is expected to be able to be reliably supplied to customers in NSW beyond the horizon of the outlook period, which is 2021/22, without the need for installation of further (new) generating capacity.

Figure 3-6 — New South Wales summer supply-demand outlook



Source: Electricity Statement of Opportunities, AEMO, August 2012, Figure 3-6.

Lumo's internal modelling of electricity supply and demand in the National Electricity Market agrees with AEMO's projections. Hence, the time at which further new generation capacity is forecast to be required in NSW has moved out by some 6 years since June last year, when Lumo applied for an

extension of 5 years to the term of its Project Approvals. Lumo was subsequently granted a 2-year extension by DoP.

Therefore, commencement of construction based on AEMO's forecast timing for new generating plant in NSW would be 2018/19. On this basis, Lumo is seeking an extension to the lapse date of the Project Approvals to February 2019.

Is construction of a Power Station at Bamarang still justified?

When a permit is granted, it is done on the basis of the assumptions and assessments contained in the Development Application and supporting documentation. Lumo understands that one of the key reasons why expiry dates are placed on Development Consents is because, over time, those assumptions and assessments become increasingly invalid. Such changes can render a development incompatible with evolving community expectations if the development is postponed unreasonably beyond the time at which it was initially assessed and approved.

In the case of a power station development, two key factors which can change, post-approval, are the technology of power generating equipment and the encroachment by competing land-uses on the buffer zones which commonly surround a power station development site. Lumo does not believe that these concerns apply to an extension of the expiry date for the approvals for the Bamarang Power Station Project.

Have there been significant advances in gas turbine technologies?

Lumo proposes to develop the Bamarang Power Station in accordance with the plans and assumptions contained in Delta Electricity's Environmental Assessment. Lumo believes that the justifications for the development of the Project and the benefits flowing from it when commissioned, as outlined in the Environment Assessment, are just as pertinent and valid today as when they were first presented by Delta in 2006. Gas turbine technology has not advanced significantly since 2006, and if Lumo were to select today the machines which will form the Bamarang Power Station, then it would only have available to it the same range of makes and models as was available to Delta in 2006.

Have other power generation technologies superseded gas turbines?

Furthermore, other power generation technologies have not emerged nor made substantial advances so as to render a gas turbine power station unsuitable or inappropriate to meet the growing demand for electricity in New South Wales. Gas-fired power generation continues to offer the most effective and reliable way to reduce the overall carbon intensity of the NSW generation fleet, and gas turbine technology offers the most fuel-efficient and flexible way of converting natural gas into electricity.

Another benefit of gas turbine generators is that they complement the installation of sustainable technologies, such as wind and solar. A characteristic of any electricity system is that the supply of electricity from all generation sources must exactly match the instantaneous demand for electricity by customers connected to that system. Both wind and solar are dependent on the occurrence of natural phenomena in order to produce electricity – in the case of wind turbines, the wind needs to blow and in the case of solar, the sun needs to shine. However, the wind does not blow continuously nor at constant strength, and the sun does not shine for 24 hours each day nor is the day-time sky always cloudless. Thus, the electrical output from these sustainable technologies varies somewhat unpredictably over time, and is largely uncorrelated to the demand for electricity. Electricity systems containing significant quantities of sustainable generation therefore require the presence within the

system of flexible, fast-responding, reliable power generating plant which can respond in order to smooth out fluctuations in electricity produced by the sustainable power stations. Gas turbine generators offer very flexible output that can start quickly and are well suited to load following and compensating for fluctuations in output from power stations based on sustainable technologies.

Has human encroachment since granting of Project Approval made the Bamarang site unsuitable for use for power generation?

The most intrusive by-products of generating electricity using gas turbine plant are noise and air-borne emissions. The competing land use within the Nowra/Bamarang area which is most incompatible with these characteristics of the operation of the Bamarang Power Station is residential habitation. Separation of the power station from residential dwellings provides the best method for attenuating noise and for dissipating gaseous emissions from the power station exhaust stacks.

Vacant, undeveloped land surrounding the Project site forms a buffer which provides the necessary separation between the power station and competing land uses. The Project relies on the presence of this buffer for its viability. Beyond the Project site, Lumo does not own the land which constitutes the buffer zone, and therefore cannot control its use or development. This land includes the Bamarang Nature Reserve (which will never be developed), the Bamarang Offstream Storage and its catchments and other Crown Land, as well as private land holdings.

Since the initial Environment Assessment of the Project was completed, there has been minimal encroachment by residential development and other human activity on the lands which form the buffer zone. Consultation by Lumo with Shoalhaven Council in 2011, prior to Lumo submitting its previous application for extension to the lapse date of the Approvals in June 2011, confirmed that land usage at Bamarang, in the vicinity of the Project site, has not changed significantly since the Project received Concept Approval. Lumo has since commissioned a study by consultants Beca to determine what, if any, encroachment has occurred since granting of Concept Approval. Beca studied the area within a 2km radius of the Project site and used as a reference the 3 properties which were identified as being sensitive receptors for the purpose of the noise and air-borne emission studies performed by Heggies and submitted as part of the original EIS for the Project. Beca's report is attached along with this submission and concludes that no further significant encroachment has occurred in regard to the Project site.

Conclusion

Lumo contends that investment in new electricity generating plant in NSW is currently uneconomic, a view which is supported by AEMO's forecasts of supply-demand balance for the State. Based on AEMO's forecasts, the earliest requirement for the commencement of construction of new plant in NSW will be some 5-6 years after the current lapse date of Project Approvals for the Bamarang Power Station Project.

A review of key assumptions which support the granting of Approval for the Project – being the continued suitability of gas turbine technology and the preservation and continued effectiveness of buffer zones surrounding the Project site – confirms that those assumptions remain valid. Thus, the construction and operation of a gas-fired power station remains a viable use for the Bamarang site.

Therefore, Lumo requests that the limits of approval of the Concept and Project Approvals be modified to extend the date on which the approvals lapse by 5 years to 27 February 2019.