Modification to Project Approval No. 06_0315
Wellington Gas-fired Peak Power Station
Supplementary Information

The following supplementary information is provided in support of modifications to Project Approval (No. 06_0315) wherein the Proponent requests:

- An extension of the lapse date to March 2019; and
- Changes to the power station configuration that would reduce noise at the nearest residences;

Approval for this modification is sought in accordance with Section 75W of the Environmental Planning and Assessment Act 1979 (EP&A Act).

1. Project Applications

1.1. Project Approval 06_0315

On the 4 March 2009 by the Minister for Planning granted Project Approval No. 06_0315 for the construction and operation of a gas fired power station at Wellington. This approval included the following:

- Construction and operation of four gas-fired turbines to generate a nominal total capacity of between 600 and 660 MW.
- Construction and operation of a natural gas pipeline connecting the power station to the Central West Gas Pipeline near Parkes.
- Associated electricity transmission infrastructure.

1.2. Modification MP06_0315 MOD 1

On 7 September 2010 the Project Approval was modified to allow for greater flexibility in the selection of gas turbines and provided for the establishment of an alternative station layout comprising of either 4 X 150MW or 2 X 225MW gas-fired turbines.

This approval included a new clause 1.1 which stated the following:

"1.1 The Proponent shall carry out the project generally in accordance with the:

a) Major Project Application 06_0315

b) Wellington Gas-fired Peaking Power Station: Environmental Assessment prepared by Parsons Brinckerhoff Australia Pty Ltd and dated May 2008

c) Wellington Gas-fired Peaking Power Station: Environmental Assessment- Submissions Report prepared by Parsons Brinckerhoff Australia Pty Ltd and dated September 2008;

d) prepared by ERM Power dated march 2010,including the following supporting documents, Wellington Power Station – Noise assessment of Siemens 4000F units prepared by Parsons Brinckerhoff Australia PTY Limited and dated march 2010 and Wellington power Project Proposed Modification Submissions report dated 1 June 2010; and

e) The conditions of this approval. "

1.3. Project Approval 09_0143

On 10 March 2011 Project Approval was granted for the construction of a related gas pipeline from Young to Wellington. An application for a Pipeline Licence was lodged in March 2012 and work continues on securing the necessary access consents to permit the issue of this licence.

2. Site Location and Context

The approved power station will be located at Wellington, approximately 50 kilometres south of Dubbo in Central Western NSW. The proposed site is approximately 2 kilometres north-north-east of the outskirts of Wellington along the Gulgong Road (also known as Mudgee Road) and adjacent to TransGrid's 330/132 kilovolt (kV) Wellington substation.

The land at the proposed power station site is gently undulating grazing land with some scattered paddock trees. The land is currently zoned 'Rural 1(a)' under the *Wellington Local Environment Plan 1995*.

Three residential properties are located near the approved power station site. The closest residential (and retail) properties include:

- Nanima House, approximately 700 metres to the west
- Mount Nanima, approximately 1.3 kilometres to the south
- The Keston Rose Garden Cafe, approximately 1.5 kilometres to the north-west.

The closest residence in the Cadonia subdivision is approximately 1.6 kilometres to the north-east; however, the majority of land parcels within this subdivision are approximately 2.5 kilometres away.

3. Proposed Modification

3.1. Modification of lapse date

When will the Power Station be built?

Approval of the power station project coincided with the start of the Global Financial Crisis that saw a significant tightening in the availability of project financing and was followed by a major shift in national energy policy that has led to a material and sustained reduction in the demand for electricity.

The Australian Energy Market Operator's (AEMO) publishes an annual forecast of the demand for electricity in the National Electricity Market (NEM). In its latest report (2013 Electricity Statement of Opportunities) AEMO forecasts that in New South Wales, a shortage of generation, based on a medium growth forecast is not expected before 2022-2023 (refer Table 6 of Figure 1). The shortage of generation initially appears as a lack of reserve capacity that is needed to ensure there is enough generation in the event of plant failures and shut downs. The lack of reserve capacity is signalled by AEMO as a Low Reserve Condition (LRC) that could lead to a breach of the Reliability Standard that sets a limit on how much electricity is not supplied to the end users (unserved energy). Figure 1 includes a graph of New South Wales supply adequacy and shows that New South Wales' firm

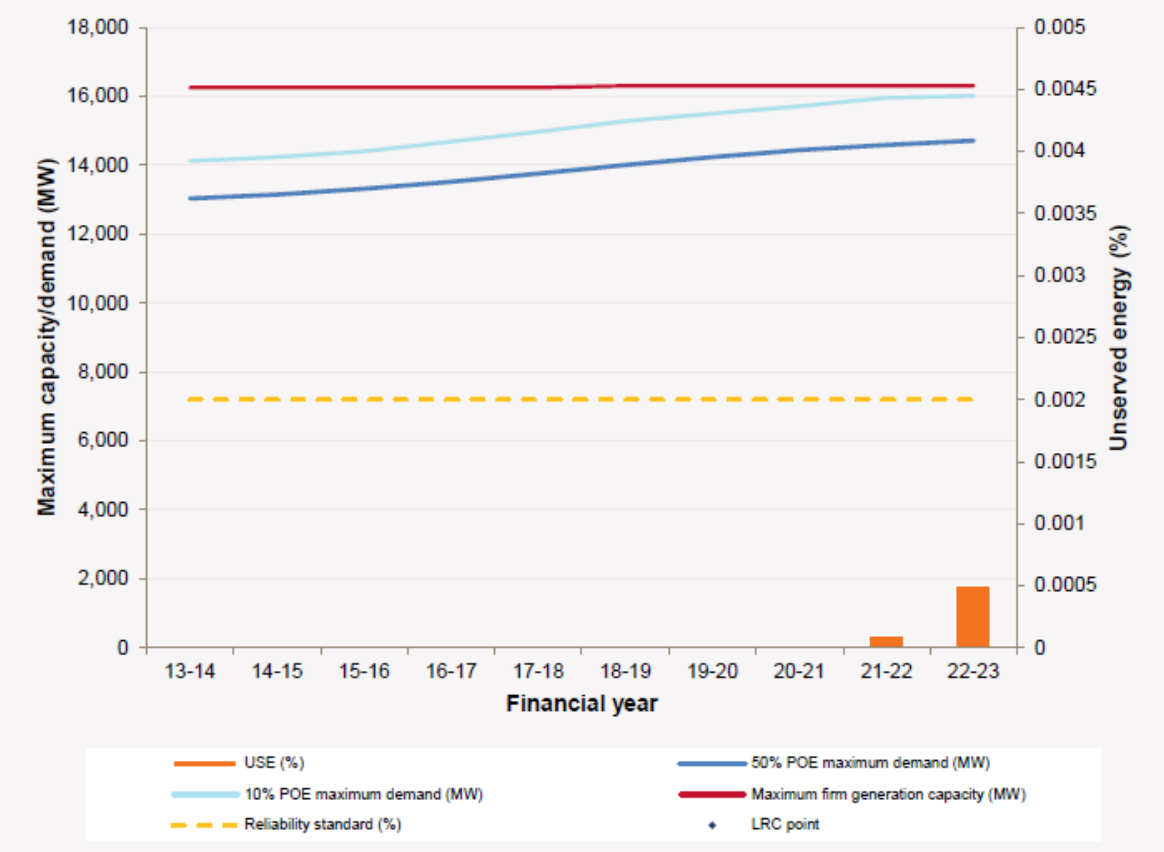
generating capacity of just over 16,000MW will not be enough in the long term and end users can expect to see the level of unserved energy trending upwards by the beginning of the next decade.

The early establishment of peaking power stations is the first remedy to improving the reliability of the supply of electricity but ultimately new base load generation will be required. Given the requirement for additional peaking power would be expected at least 2 years ahead of the need for base load generation, a 5 year extension of the lapse date provides for a latest construction start date of 2019 and would allow for commercial operation in 2021, about two years ahead of the need for new base load generation as predicted by AEMO.

Table 6 — New South Wales supply–demand outlook summary

Region	Low		Medium		High	
	LRC point	Reserve deficit (MW)	LRC point	Reserve deficit (MW)	LRC point	Reserve deficit (MW)
New South Wales	Beyond 2022–23	-	Beyond 2022–23	-	2021–22	53

Figure 5 — New South Wales supply adequacy



Generation investment interest in New South Wales is focused on wind generation, with 27 projects proposed, dominated by the Liverpool Range, Yass Valley, Rye Park and Sapphire proposals. The Gullen Range (166 MW), Boco Rock stage 1 (113 MW) and Taralga (107 MW) wind generation projects were recently committed.

Figure 1 - *Extract from page 9 of AEMO's 2013 Electricity Statement of Opportunities

Does a power station at Wellington still make sense?

There will be a need for peaking power when the demand for electricity increases. In particular peaking power will be required to compensate for the significant and rapid changes in the level of generation resulting from the increasing amount of wind generation needed to meet the RET. Gas turbines are able to respond quickly to such changes and avoid the need for load shedding and blackouts.

The criteria used in the selection of Wellington as a site for the peaking power station have not changed. Wellington 330kV substation will remain the major electricity hub for central and western NSW and provides a solid connection to the main power grid. Accordingly the power station at Wellington will service Sydney's major load centres as well as improve supply reliability to central and western NSW. The power station site is close to existing and future gas sources and there is an adequate and secure supply of water from Burrendong dam.

Has the environment changed sufficiently to render the site as unsuitable for power generation?

Wellington Council has advised that since the initial Environmental Impact Statement there have been no significant changes to the surrounding land use, no zoning changes or material amendments to local planning instruments that would be incompatible with the proposed development. From observations and discussions with Council there are no additional near neighbours or new developments located within the vicinity of the proposed power station site.

Has the technology changed so as to render the proposal obsolete?

Notwithstanding technological advances with batteries and fuel cells, gas-fired turbines still remain the most commercially viable form of large scale peaking plant. Whilst gas-turbines continue to evolve and each new generation is becoming more efficient and flexible there have been no material changes to the proposed gas-turbine plant.

Have regulations or standards changed since the approval was granted?

The EPA has advised in their letter of 21 October 2013 that there have been no material changes to the relevant regulations, guidelines and/or policies since the original approval was granted.

Modification to Condition of Consent

Condition 1.4 of Project Approval No. 06_0315 will need to be modified as hereunder to accommodate the proposed extension of the lapse date.

"The project approval shall lapse ten years after the date on which it is granted, unless the works the subject of this approval are physically commenced on or before that time."

3.2. Modification of power station configuration

What is being proposed?

On 7 September 2010 the Project Approval was modified (MP06_0315 MOD 1) to allow for greater flexibility in the selection of gas turbines and provided for the establishment of alternative station layout comprising of either 4 X 150MW or 2 X 225MW gas-fired turbines.

The latter configuration, based on using two 4000F gas turbines, was included to provide greater flexibility and allow the power station to be operated economically for extended periods of time (intermediate duty). It is now proposed to commit to this configuration only and abandon the four unit design.

The proposed modification does not include changes that would warrant any further approvals or impact on already approved processes.

Why is this design change being proposed?

The establishment of Wellington power station using two 4000F gas turbines will reduce the noise at the nearest residences.

The Noise Assessment prepared in support of the modification had regard to acoustic levels approved in 06_0315 (in particular Condition 2.7) and the *NSW Industrial Noise Policy*. The Assessment provided the following table (reproduced as Table 3-1) comparing the acoustic impacts of the proposed modification, at key receivers to that already approved.

Table 3-1 Comparison of Siemens four V94.2 and two 4000F gas-fired turbine operations

Location	Received noise level (dB(A), $L_{Aeq, 15min}$)				
		Neutral conditions		Adverse conditions	
	Allowable noise contribution	Original configuration	Proposed 2 turbines	Original configuration	Proposed 2 turbines
1. Mount Nanima	39	36	295	38.5	32
2. Cadonia Subdivision	35	26.5	26	29.5	29
3. Keston Rose Garden Cafe	37	34.5	28	37	31
4. Nanima House	35	43	36	44.5	37.5

Note: Noise levels shown to the nearest 0.5 dB(A)

Operational noise impacts for Siemens four V94.2 gas-fired turbines adopted from *Wellington Gas-Fired Power Station, Environmental Assessment* (PB May 2008)

In summary the assessment concluded that with the exception of Nanima House, operational noise impacts under neutral and adverse meteorological conditions at the nearest residences were compliant with project maximum allowable noise objectives specified in the *NSW Industrial Noise Policy*.

The assessment concluded that the modification would not warrant any changes to the approved mitigation measures stated in the Environmental Approval.

A more recent (July 2012) environmental impact assessment and approval for the Dalton Power Project included both A and C weighted noise limited for operation of a gas powered peaking plant. C weighted noise limits of 65 dB(C) day time and 60 dB(C) evening and night time were applied to ensure low frequency noise components did not adversely impact the surrounding community. To provide information on low frequency components of the Wellington power station, noise modelling has been undertaken to determine C weighted noise levels from the proposed two 4000F gas turbine configuration (cf PB Report 2162434B-ENV-MEM-001 RevA). These results are summarised in Table 3-2. Table 3-2 Predicted A and C weighted noise levels for two Siemens 4000F gas-fired turbines

Location	Received noise level (dB(A), $L_{Aeq,15min}$)	Received noise level (dB(C), $L_{Ceq,15min}$)
	Adverse conditions	Adverse conditions
1. Mount Nanima	30	46
2. Cadonia Subdivision	26.5	42
3. Keston Rose Garden Cafe	28	44
4. Nanima House	34.5	50.5

Note: Noise levels shown to the nearest 0.5 dB

Predicted noise levels exclude a 5 dB penalty on low frequency components.

The results show that the C-weighted noise levels are 50.5dBA at the most impacted receiver (Nanima House) and well below the limits recently applied at the Dalton project.

Does this change affect the viability of the Power Station Project?

No - as has been demonstrated more recently the 4000F gas fired turbines are proving to be both cost effective and operationally superior to the smaller 150MW V94.2 gas fired turbines even when used in a peaking applications.

Modification to Condition of Consent

Condition 2.7 of Project Approval No. 06_0315 will need to be deleted and replaced with the following:

*"**At-Receiver Noise Mitigation***

The Proponent shall design, construct, operate and maintain the project to ensure that the noise contribution from the project to the background acoustic environment do not exceed the maximum allowable noise contributions specified in Table 1, at the locations and during the periods indicated. The maximum allowable noise contributions apply under wind speeds of up to 3ms-1 (measured at 10 metres above ground level), and under temperature inversion conditions of up to 3oC/100metres.

Table 1 – Maximum Allowable Noise Contribution 2 x 255MW turbines

Location	*Day 7:00am to 6:00pm Mondays to Saturdays 8:00am to 6:00pm Sundays and public holidays*	*Evening 6:00pm to 10:00 on any day*	*Night 10:00pm to 7:00am Mondays to Saturdays. 10:00pm to 8:00am Sundays and public holidays*	
	LAeq (15 Minutes)	*LAeq (15 Minutes)*	*LAeq (15 Minutes)*	*LA1 (1 Minute)*
Mount Nanima	*35*	*35*	*35*	*45*
Cadonia Subdivision	*35*	*35*	*35*	*45*
Keston Rose Garden Café	*35*	*35*	*35*	*45*
Mount View, Alectown	*35*	*35*	*35*	*45*
Nanima House	*38*	*38*	*38*	*45*
Property A (Refer to Figure 3-5 of the document listed under condition 1.1b)	*35*	*35*	*35*	*45*