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# Angus Place Extension Project (SSD-5602)

## Resource & Economic Assessment

Mining, Exploration and Geoscience

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# Executive summary

## Determination

Regional NSW – Mining, Exploration & Geoscience (MEG) has reviewed the Angus Place Extension Project (SSD 5602) (the Project or APEP) amended project and has determined that it will:

- ensure reliable coal supply to the Mt Piper Power Station (Mt Piper), in terms of both quantity and quality of coal.
- improve resource recovery and be an efficient use of resources.
- add 55.7 million tonnes (Mt) of Run-of-Mine (ROM) coal to the current operation.
- ensure an appropriate return to the NSW Government including:
    - $297 million royalties (current dollars)
    - $4.3 billion in total revenue (current dollars)
- support employment for a proportion of the workforce from the Springvale Mine (when it closes in 2025) to the newly opened APEP out to 2042.

Mt Piper is the newest and most efficient coal-fired generator in NSW and is a crucial part of the electricity generation system in NSW and the National Electricity Market (NEM).

Without the APEP, Mt Piper would may not be unable to operate at maximum capacity up until the scheduled end of life in 2042.

## The project

The proponent Centennial Angus Place Pty Limited (Centennial) seeks an eastern extension to the existing operations at Angus Place Colliery (Angus Place) that will:

- extend the Life-of-Mine (LOM) until 2053
- increase annual ROM from 4 to 4.5 million tonnes per annum (Mtpa).
- include capital investment in the order of $560 million.
- increase employment up to a maximum of 450 full-time equivalent personnel.

The Project will use the existing Centennial workforce, equipment and approved management systems.

# Introduction

State significant development is regulated under the *Environmental Planning and Assessment Act 1979*, which requires a proponent to apply to the Department of Planning, Industry and Environment for development consent.

A new SSD application (SSD 5602) and supporting Environmental Impact Statement (EIS) was submitted to the then NSW Department of Planning and Environment in April 2014 for the APEP. In 2015 a decision was made by Centennial to place Angus Place into care and maintenance following the completion of secondary extraction within longwall panel 900W.

A review of the APEP was completed by Centennial to take into consideration up to date information obtained from the adjacent Springvale Colliery as well as recent changes in operational requirements. This review resulted in proposed changes to the APEP presented in the December 2019 Amendment Report (ART).

This Resource & Economic Assessment (REA) conducted for the APEP by MEG considers:

- the social and economic benefits to NSW including royalties, capital investment, revenues and jobs.
- the resource/reserve estimates stated in the proponent's ART.
- if the Project is an efficient development of the resource and that resource recovery is optimised and waste minimised.
- if the Project will provide an appropriate return to NSW.

The objects of the *Mining Act 1992* are to encourage and facilitate the discovery and efficient development of mineral resources in NSW.

Of particular relevance to this REA are Section 3A Objects:

- to recognise and foster the significant social and economic benefits to NSW that result from the efficient development of mineral resources.
- to ensure an appropriate return to the State from mineral resources.

The relevant section of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 is Part 3, Clause 15: Resource Recovery requires that resource recovery is efficient, optimised and minimises waste.

# Project overview

**Current mine history and ownership**

Angus Place is an underground mine located 15 kilometres northwest of the regional city of Lithgow and is managed and operated by Centennial Angus Place Pty Limited under a joint venture arrangement between Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited.

Centennial Angus Place Pty Limited is 100 percent owned by Centennial Coal Company Limited, a wholly-owned subsidiary of Banpu Public Company Ltd, listed on the Thailand Stock Exchange. Angus Place is owned by Centennial Coal Company Limited (50 percent) and Springvale SK Kores Australia Pty Limited (50 percent).

Mining at Angus Place has been undertaken for almost 70 years. The current consent, DA 06_0021 (as modified 5 times), was granted in September 2006 and expires in August 2024. Angus Place has been on care and maintenance since 28 March 2015.

**The proposed Angus Place Mine Extension Project**

Centennial is seeking consent for the APEP with the intention of supplying the Mt Piper for the remainder of its operating life. The Mt Piper is anticipated to cease operating in 2042, but the proponent seeks additional approval time to allow for any future potential extensions of the power station. This Project seeks approval for a maximum of 33 years until 2053, but depending on the life of Mt Piper, the Project may cease operations prior to this. The Project proposes to recover 55.7 Mt of ROM coal.

The Project is seeking approval for up to a maximum of 450 employees with the majority of this workforce likely to come from the Centennial Springvale Colliery as it ends its life at the beginning of this project.

MEG notes that this REA has been undertaken in accordance with commercial-in-confidence resource and mine schedule data supplied by the proponent. Centennial has indicated a maximum LOM extension of up to 33 years and a ROM coal recovery of 55.7 Mt.

# Size and quality of the resource

The Project proposes to continue to mine the Lithgow Seam, the basal seam of the Illawarra Coal Measures. The strata dips easterly at a shallow angle (< 5 degrees). The target seam's depth varies across the project area and ranges from 260 to 440 metres.

MEG has verified that the Project will provide 55.7 Mt of additional ROM coal which will produce around 53.5 Mt of product coal (yield of 96 percent).

The Proponent has completed coal resource and reserve estimation for the Project in accordance with the Australasian Code for Reporting Exploration results, Mineral Resources and Ore Reserves (the JORC Code). The JORC Code is an industry-standard professional code of practice that sets minimum standards for public reporting of mineral exploration results, mineral resources and ore reserves.

The coal mined at Angus Place, if approved, will supply Mt Piper which supplies 15 percent of NSW's energy needs. The Project's one product will be a 28 percent ash product suitable for use in Mt Piper. Currently the Mt Piper is due to be decommissioned in 2042 and it is anticipated that this is when the Project will also cease, however the Centennial seeks approval for production until 2053 as a contingency for if Mt Piper is decommissioned later than planned.

The geology within the proposed mining area of the APEP differs to historical mining at Angus Place. The proposed APEP longwalls are expected to encounter both seam splitting and seam deterioration as the working progress to the north and to the east. It is shown in exploration drilling that the Lithgow and Lidsdale seams are no longer convergent within the APEP area except in the western portion of the eight southern-most longwall blocks.

Because of the seam splitting, coal qualities in the project area vary from the previously mined areas. To allow for the thinner seam, new longwall equipment will be brought in after longwall 1003. In LW1001-1003 sections of the longwall's roof material may be cut to maintain mining heights. This would introduce more ash into the ROM coal and potentially mean more coal being washed.

Initially coal will be transported to the Angus Place pit top and be processed (crushed and sized) before being sent to Mt Piper by road trucks. Once an underground connection between Angus Place and the Springvale Colliery is completed most of the coal will be transferred to the Springvale Colliery pit top via conveyor. Here it will be processed in accordance with the already approved Springvale Mine Extension Project (SSD 5594) development consent.

# Resource recovery

Angus Place has recently assessed their proposed mine design and have changed the longwall layout due to geological, geotechnical and environmental constraints.

Geological constraints consist of seam thinning (due to splitting), coal quality changes, and structural geology features (faults and lineaments).

Geotechnical constraints include strata control, principal horizontal stress orientation, depth of cover, and pillar design.

Environmental constraints include the Gardens of Stone National Park, Newnes Plateau Shrub Swamps, major watercourses (Wolgan River, Carne Creek), cliffs / steep slopes / pagodas and aboriginal cultural heritage sites.

Four mining options were considered using various longwall panel widths. Centennial opted to pursue their option 2 layout (350-metre-wide longwall panels, 360 metre void width). The proposed mine layout was selected based on the following reasons:

- optimal geotechnical orientation of longwall gate roads with major horizontal stress direction (major consideration).
- optimal reserve tonnage:
    - reduced volume of sterilised coal through longwall width increase; and
    - reduced requirement for development drivage (removed 20 kilometres of drivage in comparison to the initial Environmental Impact Statement).
- opportunity to test production model assumptions in terms of geotechnical conditions and roof dilution prior to new longwall purchase.

After examination of the proponent's ART, MEG considers the Project to be an efficient development of coal resources that provides an appropriate return to the State, within the mine footprint, giving due consideration to the constraints of the location.

# Economic benefits of the resource

Over the life of the Project, assuming all production would be sold into the domestic thermal market, MEG has estimated that the value of the coal produced would be around $4.3 billion in current dollars, with the net present value of this revenue stream of around $1.9 billion at a real discount rate of seven percent.

The major benefit of the Project relates to the medium and long-term supply of coal to nearby Mt Piper. Mt Piper is the newest and most efficient coal-fired generator in NSW, as such the Australia Energy Market Operator expect it to have the longest operating life of any coal-fired generator in NSW, with an anticipated closure date of 2042. Mt Piper currently supplies around 15 percent of the electricity requirements for NSW and is an important part of the supply network across the National Electricity Market (NEM). With the expected closure of the Liddell coal-fired generator in 2023 it is crucial for electricity supply in NSW that Mt Piper's operations are not constrained for the remainder of its life. In recent years Mt Piper has experienced coal supply difficulties in terms of both quantity and quality of coal, which has restricted the generator's ability to operate at maximum capacity. Coal supply to Mt Piper currently can only be sourced from Centennial Coal owned mines in the southern part of the Western coalfield located to the north of Lithgow due to transportation limitations. These mines are Springvale, Airly and Clarence. It is unlikely that coal from the mines located in the northern part of the Western coalfield to the north of Mudgee would supply coal to Mt piper due to the significant costs involved in constructing a railway line from these mines to Mt Piper. Of relevance to the Project is that the now closed original Angus Place operation supplied the majority of coal to Mt Piper until it was put on care and maintenance in February 2015.

Coal supply to Mt Piper since the closure of Angus Place in 2015 is now mostly from the Springvale Colliery. Springvale Colliery is the closest coal mine to Mt Piper and coal from this mine is transported to the power station via a dedicated overland conveyor system. Centennial Coal has confirmed that the Springvale Colliery will cease operations in 2025. It is proposed that the APEP would be a direct replacement for production from Springvale Colliery once it is closed. Coal from the Project would be transported via a series of underground roadways that would connect with the adjacent Springvale workings and would be transported out of the Springvale Colliery via the existing conveyor system and onto the existing Springvale overland conveyor for use at Mt Piper.

Coal to Mt Piper is also currently supplied from the Airly and Clarence mines. Around 0.5 Mt was transported by rail from Airly in 2018/19 to the newly upgraded Lidsdale rail siding for use at Mt Piper, and around 0.2 Mt was transported by road from Clarence. These arrangements are most likely to be short to medium term supply options for Mt Piper. However, they provide useful options for Mt Piper if the APEP encountered mining difficulties in the future.

The Project, if approved, would provide up to a maximum of 450 full time operational jobs over the Project life. These jobs would be a direct replacement for the around 400 jobs that would be lost

when the Springvale mine closes in 2025. MEG estimates that these direct mine jobs would result in an additional 1800 indirect jobs in both mine and non-mine related services. Capital investment for the Project would be of the order of $560 million.

MEG also notes from the Economic Assessment prepared by the Proponent's economic consultant, Aigis Group, that the Project would deliver a net benefit to NSW and regional communities in Net Present Value terms of $699 million.

# Royalty calculation

The Project is a proposed underground mine therefore a royalty rate of 7.2 percent applies to all saleable production. This rate is applicable to the net disposal value. Net disposal value is the price received per tonne minus any allowable deductions. The main allowable deduction is for coal beneficiation, which is either $3.50 per tonne for coal subjected to a full washing cycle, $2.00 per tonne for coal subjected to a simple washing process, or $0.50 per tonne for coal that is washed and screened.

As a majority of ROM coal from the APEP would be subject to a simple washing process, a deduction of $2.00 per tonne from the value of coal produced applies. A deduction for levies also applies which would amount to no more than $1.00 per tonne. Hence allowable deductions for royalty for the Project are $3.00 per tonne.

One of the most important assumptions in the calculation of future royalty is the estimate of a future coal price over the life of a project. Coal from the Project is expected to be sold into the domestic thermal market. A review of coal quality information by MEG suggests this is achievable.

Coal price forecasting is inherently difficult and over the project life variations in coal prices are expected. An average price of around A$80 per tonne for the domestic thermal coal from the Project has been used by MEG and considers this price to be realistic based on its analysis of current information of coal supply/demand scenarios in the NEM.

Another important aspect of future royalty calculation for a proposed coal project is estimation of future annual production. The MEG has estimated that if the project is approved, around 54 Mt of product coal would be able to be economically mined from the Project.

Using the above parameters, MEG has calculated that the State will receive around $297 million in current dollars, and around $129 million in NPV terms (real discount rate of 7 percent) in royalty from the Project. In a typical year at full production the NSW Government would receive around $18 million in royalties from the Project.

# Departmental assessment

| Assessed by | Unit | Branch |
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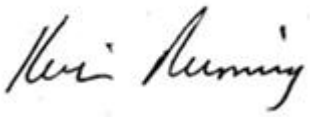
# Approvals

| Approved by | Signature | Date |
|---|---|---|
| Approving Officer: Dr Kevin Ruming<br>Director Strategic Resource Assessment & Advice |  | 20/04/2020 |
| Approving Officer: Tamsin Martin<br>Director Resources Planning & Programs |  | 09/04/2020 |
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