Australian Government

Civil Aviation Safety Authority

AIR NAVIGATION, AIRSPACE AND AERODROMES

Our file: F7/8039-27

14 November 2023

Mr Steve O'Donoghue
Director, Energy and Resources Assessments
NSW Dept of Planning
Locked Bag 5022
Parramatta NSW 2124

Dear Mr O'Donoghue

Tallawarra B Power Station Project

I refer to your letter dated 6 November 2023 regarding this project and our meeting on 13 November 2023.

2023 CFD modelling

As discussed, CASA does not have the organic expertise to examine the validity of CFD modelling and since 2020 we have confirmed on multiple occasions that if the plume rise reduces to an average velocity of 6.1m/s by 700 FT, an acceptable level of safety will have been achieved.

As explained previously, CASA did not review the documents provided as part of your invitation to meet earlier this year which we declined as we would be unable to add value given our lack of technical expertise to provide comments on this unique first of type proposal.

While considering your recent letter which related to a proposed Plume Validation Monitoring Program, we examined the 2023 CFD modelling which we are assuming is based on the matured design. We were surprised to find that the output parameters from the CFD modelling were significantly different to that presented in 2021. This included a rise in the exit temperature and an approximate 50% increase in the exit velocity.

CASA would appreciate advice on why there has been such a major difference in the output parameters. In 2021, we were informed that the peak velocity would occur at 650FT with velocity decreasing with altitude thereafter. In contrast, the current document indicates peak velocity would occur at 1115FT and not at 650FT.

In this context, CASA notes that circuit height is 1000 FT. The mitigation measures included advice in aeronautical publications and charts advising that peak plume velocity would occur at 700 FT.

Plume validation monitoring programme

As previously advised, CASA recommends the CFD modelling must be validated using the actual plume data during power plant operation.

CASA advises this is required as the PDD is a world first of type design. The correlation between modelling of plume rises from standard stacks and empirical results is well established and there is no reason for validation activities.

CASA notes the significant changes in outcomes predicted between 2021 and 2023. CASA recommends a monitoring programme that would cover a range of scenarios and in particular during cold periods when calm winds prevail.

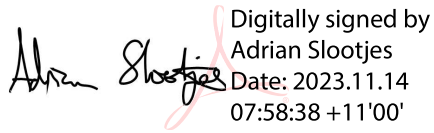
CASA does not have a firm view on which of the multiple options for monitoring should be used but notice that a provider of LIDAR services has already provided a proposal.

Aerodrome frequency response unit (AFRU)

CASA is aware that a firm proposal has been received by a provider of AFRUs to automatically include an alert when Tallawarra B is operational.

CASA recommends this option should be pursued instead of a manual option involving communications between staff of Energy Australia and Shellharbour Airport.

Yours sincerely



Adrian Slootjes
Branch Manager

Australian Government

Civil Aviation Safety Authority

AIR NAVIGATION, AIRSPACE AND AERODROMES

Our file: F17/8039-27

22 November 2023

Mr Steve O'Donoghue
Director, Energy and Resources Assessments
NSW Dept of Planning and Environment
Locked Bag 5022
Parramatta NSW 2124

Dear Mr O'Donoghue

Tallawarra B Power Station Project

I note Energy Australia's (EA) letter dated 17 November 2023, and the NSW Department of Planning and Environment (DPE) email on 20 November 2023 seeking to arrange a meeting between EA, DPE and CASA.

CASA has provided advice to DPE in good faith over a period of several years. The key element of CASA's advice, that if the plume rise reduces to an average velocity of 6.1m/s by 700 FT AMSL, an acceptable level of safety will have been achieved, has, and remains unchanged since 27 March 2020.

CASA's March 2020 advice to DPE about the adequacy of aviation controls was predicated on the project's Aviation Impact Assessment (AIA) dated Feb 2020. The AIA assumes the plume will reach a maximum average velocity below 700 FT AMSL and then reduce with altitude.

The most recent documentation supplied indicates that the maximum average velocity occurs at 1115 FT AMSL. The changed plume dimensions appear corelated to an increase in plume velocity and temperature, but I note that EA did not address CASA's request for information on that subject. I would ask that EA and DPE note that provision of documents to CASA does not constitute CASA's endorsement or acceptance of those documents.

CASA's concern is that the 2023 change in the plume parameters is not reflected in the AIA or the mitigation measures implemented or proposed. CASA also notes the aviation mitigation measures have changed since the AIA was prepared.

As CASA has not changed its assessment, and no new information has been supplied by EA in response to our recent letter, I do not consider that there is a need for a meeting with EA and its consultants.

Plume validation monitoring programme

In August 2021 CASA provided advice to DPE that the modelling must be validated.

Our 14 November 2023 letter clearly explains why we recommended plume validation for the first time.

It is up to DPE to determine how to monitor the plume, however since DPE has requested CASA's advice we provide the following.

Shellharbour City Council has taken the initiative to obtain a proposal from a commercial provider of LIDAR services and the initiative it has shown is consistent with its responsibilities as the operator of Shellharbour Airport under the *Civil Aviation Act 1988*.

CASA has also been advised of an Australian company, Airborne Research Australia, who you may wish to contact regarding their capability of conducting a plume validation programme.

CASA also expects the Council's initiative is consistent with its obligations under the Shellharbour Local Environmental Plan 2013 and the NSW *Environmental Planning and Assessment Act 1979* relating to ensuring the safety of airport operations.

DPE may wish to consider the merits of conducting the plume validation programme during the performance testing period which we understand may extend over 3 months.

CASA again stresses that we have no firm position on the validation methodology but observe the purpose of the validation is to validate the modelling at altitude not simply to measure the output characteristics at the Plume Dispersion Device (PDD) and assume the modelling to be correct.

It is not possible for CASA to definitively assess the effect of operation of the plant on the safety of aircraft operations without an effective plume validation monitoring programme.

Aerodrome frequency response unit (AFRU)

CASA stands by our recommendation on this matter.

A firm proposal has been received by a provider of AFRUs to automatically include an alert when the plant is operational, and we understand this can be implemented within a two-month period. The aerodrome already has an AFRU, and CASA is unaware of any additional ACMA obligation which would be enlivened by the proposal. CASA notes the existence of information messages on AFRUs at other aerodromes.

Yours sincerely

Digitally signed by Adrian Slootjes
Date: 2023.11.22 15:05:43 +11'00'

Adrian Slootjes
Branch Manager