

PROPOSED AGL DALTON POWER PROJECT

SUBMISSION ADDRESSING THE ENVIRONMENTAL ASSESSMENT

We are rate-paying residents of the Dalton village. This document outlines our submissions with respect to the Environmental Assessment (EA) prepared by URS on behalf of AGL for the proposed Dalton gas-fired power project.

1. GENERAL INADEQUACY OF THE EA

The first point that must be made with respect to this EA is its inadequacy in terms of the objectives it is required to achieve. These objectives, as outlined by the Proponent (EA p1-9) include “...to provide the NSW Minister for Planning and Infrastructure with [sufficient information](#) to determine the environmental impacts and benefits of the Dalton Power Project”, “...to provide the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities with [sufficient information](#) to determine the environmental impacts and benefits of the Dalton Power Project”, and “...to inform the community about the Dalton Power Project”.

It is submitted that the EA, in its lack of specificity and detail as to what is actually proposed, fails to satisfy these requirements. The Proponent has not clearly identified nor specified, amongst many other things:

- the type of turbines to be installed. There may be “between two to four “E” class turbines... or two to three “F” class turbines”... (EA p1-1). This has serious implications for the quantity and quality of water required for the “efficient” operation of the facility.
- any consistent detail as to the operational time of the proposed project. This is variously stated as “...typically operate for 15% of each year, with the potential for more extended operation” (EA p1-1); “15% of the year to allow for rare and extreme events¹... reasonable peak run time of 5% of the year...” (EA p14-8); or “approximately 3% of the year...” (EA p9-12). An example of the issues raised by the lack of the Proponent’s commitment to the operational time of the project is identified on EA p9-12, where the Proponent states that “... large uncertainties are associated with the potential emissions over the project lifetime.”

In the absence of any water-use data relating to operation in excess of 5% of the year, it is submitted that the Proponent could not be applying for approval to operate the plant for anything in excess of that limit. An application for operations in excess of 5% must necessarily provide the relevant ministers with “...[sufficient information](#) to determine the environmental impacts...” of operating at that level (EA p1-9).

¹ “rare and extreme events” are not defined or explained in the EA.

- how water will be sourced for the project. The ability “to demonstrate that an adequate and secure water supply is available for the life of the project” is a clear and unequivocal requirement of the Director General and has not been satisfied.

If ground water is to be used, this will have serious implications for others dependent upon that supply for domestic, business or agricultural purposes. It could also have potential consequences for the Dalton village water supply, which relies on groundwater. If water is to be trucked in, traffic implications arise for local roads as well as for the towns of Gunning and Dalton. There will also be greenhouse gas emission implications from this method of sourcing water due to truck fuel usage, and these implications have not been addressed or included in the relevant assessments. These issues are further compounded by the fact that water requirements are assessed on the basis of a “reasonable peak runtime of 5% of the year” (EA p14-8), whereas the Proponent elsewhere states that the plant will “...typically operate for 15% of each year, with the potential for more extended operation” (EA p1-1).

- the routes to be taken and any associated road alterations or vegetation clearing necessary for the movement of these oversized loads. This will have serious consequences for the visual/aesthetic impact of the project; disruptions to access between Gunning and Dalton for education, childcare and commuters; and serious potential impacts on local flora and fauna.
- background, pre-development noise and air assessments for the site and for the village of Dalton or other “sensitive receptors”. While levels at more heavily polluted sites may provide conservative assessments of the expected total emissions from the project, the absence of any data with respect to existing conditions does not provide “...sufficient information to determine the environmental impacts and benefits of the Dalton Power Project...”. It also allows the Proponent to draw spurious conclusions such as “no adverse impacts on local air quality are expected as a result...” (EA p9-9). Undertaking these assessments is also critical for the purposes of assessing any subsequent applications to realise the “...potential for more extended operation” (EA p1-1).
- The Dalton Public School has not been considered as a “sensitive receptor”. No background levels of pollutants or noise have been established against which impacts may be assessed. The students grow vegetables for their own consumption and rely on harvested rainwater for drinking and other requirements. Insufficient data has been provided regarding the cumulative effect of exposure to the relevant pollutants. Of particular concern is exposure to some of the hazardous air pollutants (HAPs) identified in the EA, such as polyaromatic hydrocarbons, which may be highly persistent and highly toxic, and have significant detrimental health consequences.

- The Proponent has identified in relation to the Dalton Potable Water Supply that “...water quality is of a relatively poor standard as drinking water...Previous water quality assessments indicate that water hardness and total dissolved solids (TDS) uniformly exceed the National Health and Medical Research Council (NH&MRC) Guideline values” (ES p 14-16). Many residents of Dalton, as well as all rural residents, rely upon harvested rainwater for drinking requirements. An assessment as to the effects of cumulative exposure to relevant pollutants produced by the proposed facility is required. Of particular concern is the treatment of pollutants as formaldehyde. While formaldehyde is not relatively persistent, some of the HAPs identified in the EA, such as polyaromatic hydrocarbons, may be highly persistent and highly toxic. These pollutants have potential to contaminate our drinking water supply and expose us to risks associated with cumulative exposure. It is submitted that satisfying the criteria with respect to formaldehyde does not adequately address the issues relating to all HAPS. Evidence is therefore required as to the potential for this harm and the mitigation measures to be taken.
- failure to address electricity transmission losses in considering alternatives to the proposed facility. Proximity to areas of peak demand was stated to be a relevant, indeed important, consideration in the EA for the Leaf’s Gully Project, yet the losses in transmission between Dalton and the areas of peak demand are not identified nor discussed.

It is submitted that these inadequacies and inconsistencies, amongst others, in the EA are sufficiently serious as to fail to satisfy the Director General’s Requirements and the EA’s intended purpose. There is insufficient specificity to allow the relevant government departments to determine the project’s environmental impacts. Further, the EA does not sufficiently inform the community about the project.

Despite the assertions of the Proponent, we will be seriously impacted by this project, should it proceed. Given that this is the only opportunity afforded to us to have our concerns addressed, it is unreasonable to expect that we should consider all possible alternatives and permutations in this EA, within the ridiculously short time-frame we have available. We have jobs and children and responsibilities. If the EA was complete, in that it stated, for example: “There will be 6 “F” class turbines, there will be no water, we will make significant changes to the road and remove all of the trees, air pollution will increase by x%, noise will increase by x%, there will be few if any jobs, your property would be expected to be de-valued ...”, then we might have a chance of properly assessing and addressing the implications.

Furthermore, it is clearly a waste of government departments’ time, and taxpayer funds, that these agencies should similarly be asked to make a decision based on this EA. In my and my partner’s extensive experience of regulatory assessments, it is up to the Proponent to clearly specify that for which they are seeking approval, not for the government department to assess all of the options on behalf of the Proponent.

It is our submission that the EA is inadequate for the purpose for which it has been presented. We seek to have the decision as to its adequacy reconsidered, to have an EA presented in a form in which the issues are clearly identifiable, and to have an opportunity to properly assess and address these issues. Failing this, we seek to have the following issues addressed properly and obtain undertakings from the Proponent to provide the necessary information, to accept responsibility for the adverse impacts inherent in the proposal, and to commit to appropriate mitigation, remediation and compensation with respect to those impacts.

2. WATER

The Director General's Requirements specifically state that:

"The Proponent must be able to demonstrate that an adequate and secure water supply is available for the life of the project" (EA, p1-13). At best, the EA identifies "a number of potential water sources" (EA, p14-15) for which "approval is sought". This clearly does not satisfy the Director General's Requirements.

It is therefore essential that the following matters be determined and verified.

- The actual water requirement. The Proponent must specify the type and quantity of the turbines to be installed. The nature and extent of water-cooling with respect to the proposed configuration must be declared. It is irrelevant that "...if high fogging is not included, the overall water demand... would be substantially reduced..." (EA p14-9), if it is intended to be used because of "efficiency" reasons. More information is also required as to the air quality implications of not applying water in the process. The US EPA site provides a document that states, in relation to gas-fired turbines:

"Water or steam injection is a technology that has been demonstrated to effectively suppress NOX emissions from gas turbines. The effect of steam and water injection is to increase the thermal mass by dilution and thereby reduce peak temperatures in the flame zone. With water injection, there is an additional benefit of absorbing the latent heat of vaporization from the flame zone. Water or steam is typically injected at a water-to-fuel weight ratio of less than one.

Depending on the initial NOX levels, such rates of injection **may reduce NOX by 60 percent or higher**. Water or steam injection is usually accompanied by an efficiency penalty (typically 2 to 3 percent) but an increase in power output (typically 5 to 6 percent). The increased power output results from the increased mass flow required to maintain turbine inlet temperature at manufacturer's specifications. Both CO and VOC emissions are increased by water injection, with the level of CO and VOC increases dependent on the amount of water injection." (www.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf, 3.1.4.1 Accessed on 10/09/2011)

The Proponent has not adequately addressed this issue, and the relevant departments may impose in any approval, an obligation to use additional

water to achieve "Best Available Control Technology (BACT)" (EA p1-13 Table 1-1, Director General's Requirements).

The actual water requirement will also necessarily depend upon the operational time of the facility. The EA assumes an operational time of 5% of the year. Elsewhere in the EA, the Proponent states that the facility will "...typically operate for 15% of each year, with the potential for more extended operation" (EA p1-1). In the absence of any data relating to operation in excess of 5% of the year, it is submitted that the Proponent could not be applying for approval to operate the plant for anything in excess of that limit. An application for operations in excess of 5% must necessarily provide the relevant ministers with "...sufficient information to determine the environmental impacts..." of operating at that level (EA p1-9).

- The intended source of water. If groundwater is being accessed and used, the impact of this on other users, including the Dalton Village, should be adequately addressed. During the recent drought years, bore yields were not dependable and could not be considered an "adequate and secure water supply".

If water is to be trucked in, assessments need to be made as to the impacts of this on our roads and towns. As ratepayers, we cannot be expected to be exposed to any liability for maintaining and repairing roads for the benefit of a private, commercial organisation.

The trucking of large quantities of water will also necessitate additional water requirements for adequate dust suppression. This has not been adequately addressed in the EA. Estimates in the EA allow for one water truck per day during the construction stage (EA Table 4-2, Appendix F) and none during the operational stage. Given the projected increase in traffic and "...the potential for dust to be generated due to the excavation and handling of soils, site grading activities and vehicle movements...", one water truck per day is patently insufficient to provide adequate dust suppression on both the dirt roads and a 27-ha construction site.

Given the above, it is submitted that the following undertakings must be required of the Proponent.

- The provision of specifications regarding configuration, cooling requirements and maximum operating time of the facility, in order to quantify the water required.
- Contractual agreements with respect to the supply of water.

3. AIR

"No site-specific background monitoring data was available for this assessment" (EA p9-4). Therefore, the Proponent has adopted an assessment that it states as "...unsuitable for predicting the actual scale of cumulative air quality impacts of the proposed project" (EA p9-4). Despite this, the Proponent concludes in the EA that "...no adverse impacts on local air quality are expected as a result..." of this project (EA p9-9).

The EA states at EA 9.5.2 that, "(i)n order to assess the cumulative impacts of the plant emissions on the [local air quality](#), background concentrations of the criteria pollutants were obtained from the relevant OEH and TMS monitoring stations." These concentrations allow comparison with the areas from which they were derived and have no bearing on the impact on our air quality. The predicted NO₂ emissions from the proposed project are 166% of the background levels recorded in Monash ACT, which the Proponent states to be "...considered 'generally representative of the upper bound' of pollution concentrations for the region..." (EA p9-4). It is submitted that even compared to the Monash data, the predicted emissions would represent a significant adverse impact on air quality. It must be implied that site-specific data would demonstrate an even greater significant adverse impact.

It is essential that the Proponent provide pre-development background monitoring data. The true impact of this proposal cannot be assessed without it. Further, without such data, any subsequent applications to operate beyond the 5% annual threshold sought by this application should require an assessment of the impacts in the context of the pre-development environment.

The "monitoring" proposed by the EA will be meaningless without appropriate scientifically valid controls. To suggest otherwise is poor science.

It is not clear from the EA as to the assumptions made with respect to the application of water in the generation process when assessing the air-quality impacts. This water use is described in the EA as "discretionary" and would affect "...merely the efficiency of that generation" (EA p14-8). Although it is mentioned that "(p)rocess water also has the effect of marginally reducing the carbon dioxide (CO₂) emissions per unit power generated (~2%)" (EA p 14-8), no further consideration is given to this matter. On a quick Google search (quick because of the limited time available for critical examination of these issues), I found the following US EPA document, which states, in relation to gas-fired turbines:

"Water or steam injection is a technology that has been demonstrated to effectively suppress NOX emissions from gas turbines. The effect of steam and water injection is to increase the thermal mass by dilution and thereby reduce peak temperatures in the flame zone. With water injection, there is an additional benefit of absorbing the latent heat of vaporization from the flame zone. Water or steam is typically injected at a water-to-fuel weight ratio of less than one. Depending on the initial NOX levels, such rates of injection **may reduce NOX by 60 percent or higher**. Water or steam injection is usually accompanied by an efficiency penalty (typically 2 to 3 percent) but an increase in power output (typically 5 to 6 percent). The increased power output results from the

increased mass flow required to maintain turbine inlet temperature at manufacturer's specifications. Both CO and VOC emissions are increased by water injection, with the level of CO and VOC increases dependent on the amount of water injection." (www.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf, 3.1.4.1 Accessed on 10/09/2011)

We don't have time to examine the implications of this, but hope that the Proponent will be required to address emission mitigation measures in more detail.

In addition to the issues addressed by the Proponent, the Director General also requires that the EA address "...any significant up or downstream emissions" (EA Table 1-1 'Greenhouse Gases'). Given the high volumes of road traffic outlined and the possibility of large numbers of water trucks being required, it is submitted that the relevant emissions would be significant. This should be addressed, quantified and made available.

Given the above, it is submitted that the following undertakings must be required of the Proponent.

- Conducting investigations to determine the background pre-development levels of relevant contaminants to enable a determination of the predicted "...actual scale of cumulative air quality impacts of the proposed project", and for the purposes of effectively assessing any subsequent proposal for extending operations beyond the 5% annual operating time sought by the Proponent under this application..
- The submission of further information regarding the consequences for emissions of not using water in the electricity generation process.
- The provision of data regarding the greenhouse gas emissions likely to result from the greatly increased traffic flows predicted during both the construction and operational stages.

4. NOISE

The EA is also deficient with respect to noise. No assessment of either the existing noise levels, nor the predicted noise levels from the project, have been provided for the village of Dalton. It is essential that the Proponent provide pre-development background monitoring data. The true impact of this proposal cannot be assessed without it. Further, without such data, any subsequent applications to operate beyond the 5% annual threshold sought by this application should require an assessment of the impacts in the context of the pre-development environment.

When low-frequency noise impacts were found by the Proponent to exceed the criterion, an alternative assessment was proposed. Such an approach was rejected by the Department of Energy and Climate Change (DECC) when it was proposed for use in the Proponents EA for the Leafs Gully Gas Turbine Power

Station. In a letter to the Department of Planning, the Deputy Director General, Environment Protection and Regulation stated:

“DECC does not accept the proposed method to assess low frequency noise. The current method specified in the Industrial Noise Policy has been reviewed by industry and community representatives and approved by Cabinet as a “whole of government” policy. Therefore it is not appropriate for the Department of Environment and Climate Change to accept other methods such as that specified in the Environmental Assessment...”.

Therefore, the proposed alternative assessment of low-frequency noise is clearly not acceptable in this proposal either.

Given the above, it is submitted that the following undertakings must be required of the Proponent.

- Determining the background pre-development noise levels in the Dalton village to enable a determination of the predicted impacts of the development; to provide a base level against which results from monitoring may be meaningfully assessed; and to effectively assess any subsequent proposal for extending operations beyond the 5% annual operating time sought by the Proponent under this application.
- To reduce low-frequency noise to within the required standards based on the accepted assessment methodologies.

5. TRAFFIC

Insufficiency of time has precluded anything other than cursory look at the traffic issues relating to the proposal. The following issues, however, clearly arise:

- Underprovision for dust abatement. One water truck per day is estimated for dust suppression for the entire 27-ha construction site and the dirt roads leading to the site (EA Appendix F Table 4-2). No provision was made for water trucks during the operational stage, despite 40 trucks per day estimated to travel on the dirt road for delivering process water.
- The Environmental Risk Assessment (EA Table 7-1 p 7-3) in relation to traffic addresses only the impacts on Dalton. Whilst the noise will be annoying and we will be overcome with dust, the really significant traffic impacts will be felt in Gunning, where the trucks will go right through the main street of town.
- The road between Dalton and Gunning does not have “overtaking opportunities for both directions for the majority of its length” (EA Appendix F p11). This is just not true.

- Dalton and its surrounds has many commuter workers, Gunning-based Shire employees and children who attend preschool, primary school and after-school care in Gunning. Alternative routes into Gunning require serious, time-consuming detours on substandard roads. The significant road modifications required and the greatly increased numbers of heavy vehicles will cause significant disruptions and inconvenience to the local population.
- The Executive Summary states that the proposed construction and operation of the facility is "...not expected to degrade the existing acoustic environment nor create annoyance to the residential receptor locations surrounding the facility" (EA, ES-12). However, this spurious conclusion is based on the fact that the predicted traffic noise impact is assessed in decibels (dB). Despite an increase in traffic flow on Dalton Road of up to 66% and an increase on Walsh's Road of more than 800%, the frequency of noise impact events is not considered relevant, nor the number of those events at the higher decibel mark (i.e. a far greater number and proportion of heavy vehicles).

The construction is expected to take four years. This is a significant time period during which we can expect to be seriously impacted and inconvenienced.

6. FLORA/FAUNA

The road between Gunning and Dalton is, for a large part of its 9-km length (contrary to the EA's measurement of 3.4 km [ES Appendix F, para 2.1]), lined on both sides by large, old eucalypts and other native vegetation. The proximity of these trees to the roadside, and their habit of overhanging the road, would necessitate the removal of many of them. Widening of the road to accommodate oversized loads will similarly involve destruction of many smaller trees and shrubs.

It is well known that roadside corridors provide the only native habitat within a highly modified landscape. These corridors are generally thought to allow plants and animals to disperse (or migrate) from one habitat area to another, facilitating gene flow and colonisation of suitable sites (www.tmr.qld.gov.au). Land reserved as easements for roads, rail lines and for protection of creeks and rivers often provide vegetated corridors vital to fauna movement. Surveys carried out by the Proponent were focused on the proposed areas of works (EA 13.2.5), and apparently no consideration has been given to roadsides. A full assessment of the impacts of the road modification and tree removal for the transportation of plant for the proposed project needs to be undertaken. Without this, there is not "sufficient information" upon which the relevant ministers can effectively assess the full environmental impact of this proposal.

Assessments by the Proponent in relation to the effect on flora and fauna on the proposed project site are inadequate and trivialise the subject. For example, surveys conducted on threatened species included a survey for the endangered Golden Sun Moth. The surveys were performed during 10-11 February and 21-

24 February 2011 (EA 13.2.3). A quick literature search for information on the flying season for the Golden Sun Moth reveal that the flying season can vary between early November to mid-December and late November to early January (www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=25234). As the Proponent identifies, the survey carried out regarding the Golden Sun Moth is completely inadequate and does not provide us with any useful information. The Proponent proposes that further surveys be undertaken prior to construction (13.4.3). However, this does not provide either of the relevant departments with sufficient information upon which they can assess the environmental impacts of the proposed project. Nor does it allow us to address these issues in this, our one opportunity to have our submissions considered.

The farcical nature of the Proponent's assessment is demonstrated in EA p13-22 where it is claimed that the destruction of 33 hollow-bearing trees is purportedly "offset" by the existence of 49 hollow-bearing trees in the proposed "offset site", irrespective of the fact that both populations presently exist. The net result is the destruction of 33 hollow-bearing trees, which can take up to 100 years to form the hollows required for habitat.

7. VISUAL IMPACTS

As identified above in 6., the road between Gunning and Dalton is, for a large part of its 9-km length (contrary to the EA's measurement of 3.4 km (ES Appendix F, para 2.1)), lined on both sides by large, old eucalypts and other native vegetation. The proximity of these trees to the roadside, and their habit of overhanging the road, would necessitate the removal of many of them. Widening of the road to accommodate oversized loads will similarly involve destruction of many smaller trees and shrubs.

These trees are not only important habitats and wildlife corridors; they also form an attractive avenue on the approach to Dalton. Destruction of these old trees will have a significant adverse visual impact. The age of these trees precludes replanting from adequately compensating or offsetting their destruction. It will take more than 100 years to restore this vista to its present condition.

The Proponent has failed to identify and address this as an issue in their EA.

8. SOCIO-ECONOMIC

The EA identifies no positive local impacts for Dalton. Any jobs created during the construction stage are likely to be short term, and workers will "most likely be sourced from Goulburn". The EA states that "...the local population is not expected to be impacted by the project as the employment numbers during operation are not significant..." (EA, ES 16). That is the extent of the discussion in the EA of the socio-economic impacts of this proposal on Dalton. There is very little unemployment in Dalton. The employment impact, if any, will be negligible.

The only other assessment is on economic contribution at a national level.

It is submitted that a significant socio-economic impact resulting from this proposed facility will be the reduction in the value of our properties. Apart from those born here, residents of Dalton have chosen to live here for the rural ambience, clean air and serenity. People like us would not choose to live in the shadow of the largest gas-fired power station in NSW. There will be a dramatic decrease in demand for Dalton real estate at current market valuations. We will lose value in our homes through none of our own doing. There will be no offsetting increase in demand due to job creation.

Disruptions to traffic flows through road modifications and transportation of oversized loads will cause serious disruptions to our lives. The Gunning-Dalton Road is a vital link between Dalton and the rest of the world. Alternative access requires lengthy detours on sub-standard roads.

Given the above, it is submitted that the following undertakings must be required of the Proponent.

- The Proponent must acknowledge that the proposed facility could seriously negatively affect the value of our property. The Proponent should be prepared to compensate affected residents for any devaluation independently assessed to be directly attributable to the facility. We cannot accept that we should bear the financial cost of any such devaluation when we are to receive none of the benefits of the project. This is a cost that should be internalised and for which AGL shareholders should be liable.
- Adequate notice must be given to all residents regarding all traffic disruptions. There should be undertakings regarding not causing disruptions during the morning and evening peaks and during school drop-off and pick-up times.

The EA contains many other issues that we have not had time to address. This is very distressing, given that this is our only opportunity to express our concerns. The Proponent has, by the inadequacy of the EA, denied us the proper opportunity to identify and address matters of concern that will impact us.

There are many costs associated with this proposal, which the Proponent seeks to externalise. We don't believe that we should have to pay the significant personal cost for the financial benefit of AGL shareholders.

We trust that our concerns will be afforded the serious consideration that they deserve.

Yours Sincerely

Alister Waine, Dr. Kahli Weir, Tana Waine and Hunter Waine