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OBJECT

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Submission attached.

I am an agricultural economist with an Honours degree from the Australian National University and a Masters Degree in Economics from the University College London. I am also a member of the Australasian Agricultural and Resource Economics Society. I have taken a particular interest in this project as I grew up in the Tamworth area and have family who operate a beef cattle enterprise on Marsden Park Road. I have closely considered the proposal from an agricultural economics perspective and wish to bring several points to the Commission's attention.

1. The impact of solar farm developments on land values should be considered as part of the economic impacts in the locality in the IPC's determination.

I am aware that the Department of Planning and Environment considers that *'[t]here is no evidence to suggest that large-scale solar developments affect the land value of neighbouring properties. While the department acknowledges that effects on land value (positive or negative) are of great concern to the community and landholders, this is not a planning issue and is outside the scope of what the consent authority can consider in making a determination on a DA.'*

However, as the IPC noted in its decision in relation to the Glanmire Solar farm in January this year, the NSW Court of Appeal has found that property values can be a permissible consideration. Further, the Large-Scale Solar Energy Guidelines FAQ states that the consent authority should consider the *'social and economic impacts of a development in the locality and ... whether the project would be in the public interest'* (Large-Scale Solar Energy Guidelines FAQ; s 4.15(1) Environmental Planning and Assessment Act 1979). Potentially substantial decreases in land values form part of the economic impact of a development and therefore should be considered in that context.

In the Glanmire decision, the IPC noted that the NSW Land and Environment Court considers that consideration of property values should be based on expert evidence and pointed to a lack of expert or peer-reviewed evidence on the Project's potential to impact the property values of neighbours. However, as the editors of the statistical journal *The American Statistician* have painstakingly pointed out in their entire issue dedicated to the topic in 2019,¹ it is incorrect to conclude that an association or effect is absent just because it is not statistically significant.

In Australia, the lack of evidence relating to property prices near large-scale solar farms reflects the relative recency of developments of this kind. The lack of statistically significant evidence relating to renewable energy developments of any kind is attributable to small sample size, given these developments tend to occur in rural areas where the turnover of rural properties is generally low. In fact, renewable energy developments of this kind further reduce turnover by decreasing the pool of potential buyers (as demonstrated by Hall et al, 2012),² making it more difficult to identify a statistically significant effect on prices.

Importantly, the fact that there is, as yet, insufficient Australian data to estimate the impact on land prices does not mean there is no impact. Fundamental economic theory (the laws of supply and demand) leads to the conclusion that the reduction in demand identified by Hall et al (2012) will result in lower prices. Based on my review of the literature, this theoretical result is supported by peer-reviewed empirical studies from overseas. Many overseas studies relate to effects on property prices in towns, which are easier to estimate because of their greater sample size, but which makes them a less useful guide for potential impacts on neighbouring landholders in the Middlebrook Solar Farm scenario. However, several recent publications separately examine the impact of solar farms in

¹ Wasserstein, Schirm & Lazar (2019), *The American Statistician*, Vol 73, p1-19).

² Hall, Ashworth & Shaw (2012), *Exploring community acceptance of rural wind farms in Australia: a snapshot*, CSIRO Science into Society Group.

rural areas. One such example is the analysis of Elmallah et al (2023) which found that in some US states, nearby property prices fell by as much as 4 - 5.6% following the installation of solar farms.³ Further, that paper finds that property price decreases are largest where the land subject to the solar farm installation was previously used for agricultural purposes, as is the case for the proposed Middlebrook Solar farm.⁴ Another recent paper, Gaur & Lang (2023), also separately identifies the property price impacts of solar farms in rural locations in the United States and arrives at similar estimates. That study found that for properties *'in the vicinity of solar installations in rural locations, the decrease in value is between 2.5% and 5.8% post solar installation construction.'*⁵

I note that in the Transcript of the Commission's recent meeting with the Department of Planning, representatives of the Department of Planning indicated it was their assessment that declining land values due to the project would not have significant economic impacts on the locality (p 13). This is a surprising assertion given the available evidence. A reduction in property values for surrounding landholders of the magnitude suggested by the 2023 studies cited above would be economically significant for the affected farming families and detrimental to the locality as a whole. Farmers tend to be asset rich and cash-flow poor. Such reduction in asset values would affect nearby farmers' ability to borrow funds to finance their enterprises, could lead to financial stress and would almost certainly restrict their ability to consume goods and services, which would have flow-on effects for the broader Loomberah and Tamworth economies.

In fact, Gaur & Lang (2023) estimate that for large-scale solar developments in rural areas, *'the local disamenities are of the same order of magnitude as the global benefits of abated carbon emissions'*. This finding calls into question the Department of Planning's implicit assumption that the project is in the public interest. In addition to the land values impacts on neighbours, the supply constraints already facing the Tamworth area are likely to further restrict (if not entirely offset) any economic benefits of the Middlebrook Solar Farm project. In particular, the Applicant's assertion that the workforce will be largely drawn from the local community is implausible given the historically low unemployment rate in Tamworth, the number of other substantial construction projects also slated for the coming years (including other solar and industrial projects) in the region and the time required to reskill the local workforce to be suitable for renewable energy production. In that context, it would be highly inflationary to draw the workforce from the local population. In contrast, if the workforce is to be drawn from outside the region, accommodation supply will be a substantial constraint. I note in this regard that the Tamworth Regional Council has expressed concerns to the IPC about the ability of Tamworth's accommodation providers to meet the existing demand from social housing, other development projects, the abattoir workforce and special events, without even considering the cumulative additional demand from the renewable energy projects that are proposed for the region. Additional strain on this sector would also be inflationary, and as noted by the Tamworth Regional Council, is likely to divert significant social and sporting events (and their attendant economic benefits) away from the region.

The application should be refused given these negative economic impacts. However, in the event the IPC approves the development, I submit that the Department's recommended conditions of consent

³ Elmallah, Hoen, Fujita, Robson & Brunner (2023), 'Shedding light on large-scale solar impacts: An analysis of property valued and proximity to photovoltaics across six U.S. states', *Energy Policy*, Vol 175.

⁴ Elmallah et al (2023) do not find evidence of price declines in US states with lower proportions of solar farm development in rural areas, which further suggests that studies that mix together urban and rural samples will tend to understate the true property price impacts of solar farm development in rural locations.

⁵ Gaur & Lang (2023), 'House of the rising sun: The effect of utility-scale solar arrays on housing prices', *Energy Economics*, Vol 122.

do not adequately mitigate these negative economic impacts on the local area. Most notably, the proposed conditions do very little to address the visual amenity and landscape character externalities that will be produced by the project. The literature I have referred to demonstrates that the character of the landscape and visual amenity impacts tend to be the most important considerations from a land values perspective.

In the absence of appropriate compensation arrangements through a meaningful neighbourhood benefits scheme that takes into account the relative visual impacts for all those affected, at a minimum the Commission should consider imposing additional conditions aimed at minimising the visual amenity impacts on nearby properties, including requiring:

- screening along the Middlebrook road project frontage and next to all buildings on the site using appropriate vegetation;
- a minimum setback from Middlebrook road; and
- the re-siting of key infrastructure on the site, most notably the substation, project buildings and carpark to behind the knoll on the property where it would not be visible from the majority of properties in the valley.

2. The Department of Planning's assessment understates the agricultural impacts of the proposed development.

The proposed site is arable, sloping land in a valley. According to the site selection considerations identified in the Large-scale Solar Guidelines (Figure 2), this means that it combines the 'negatives' of high potential for impacts to productive agricultural land, moderate potential for visual impacts, moderate potential for biodiversity impacts and moderate topographical constraints. This contrasts with the applicant's assertions that the site has been selected such that these impacts will be 'low'.

The Department's Assessment Report notes that the proposed site represents only a small share of the agricultural land within the Tamworth Local Government Area ('LGA') and therefore concludes that any impact of the project on agriculture in the LGA is minimal. This conclusion is untenable for three reasons:

- (1) It fails to consider the potential spillovers to neighbouring land, including loss of productivity due to increased dust, traffic, noise, fire risk and heat, and reduced pest and weed control.
- (2) It ignores the cumulative impact of the other large-scale solar developments proposed in the LGA (one of which is also sited within the Loomberah locality, exacerbating the potential spillovers noted in (1)).
- (3) It does not account for differences in quality and productivity of agricultural land or land management practices. The Loomberah area is widely considered as prime production land.

A thorough examination of the impact on agriculture in the area should account for spillovers to neighbouring land, differences in agricultural productivity across the LGA, any concentration of the LGA's total production of certain types of output in the affected locality (e.g. livestock in the Loomberah locality) and the type of production to which the land is most suited. This last aspect is presumably what the Department of Primary Industries was considering when it noted in its commentary in response to the EIS that the Applicant has seemingly failed to consider the cumulative impact of the proposal on the loss of land mapped as LSC Class 4 within the LGA.

The Department of Planning's recommended conditions of consent are insufficient to mitigate the likely impacts on agricultural land use. It is particularly concerning that the Department of Planning

has not included several consent conditions recommended by the Department of Primary Industries (DPI), namely:

- An additional soil survey and LSC mapping;
- The preparation of a Groundcover Management Plan; and
- The preparation of a Pest and Weed Management Plan developed in consultation with NSW Local Land Services;

In the event the IPC consents to the development, these conditions should be included in order to minimise the project's detrimental impacts on agricultural land use.

In addition to the above, the DPI originally requested a consent condition relating to the development of a Grazing Management Plan, but this was removed after the Applicant's amended proposal committed to consistent groundcover management instead of an agrivoltaics programme. However, in the Transcript of the IPC's meeting with the Applicant on 2 September 2024, the Applicant indicated that it was once again looking at having grazing of sheep under the photovoltaic panels. In light of this, the IPC should impose a consent condition requiring the Applicant to develop a Grazing Management Plan in consultation with NSW Local Land Services.

3. Development of this kind outside designated Renewable Energy Zones (REZs) is not in the public interest.

According to the NSW Large-Scale Solar Energy Guideline '*[t]he NSW Government will encourage development in REZs to support a transition to renewable energy. This will **ensure that development occurs in appropriate areas** close to existing transmission and distribution infrastructure and has fewer environmental, heritage and land-use constraints than some other parts of NSW.'*

Further, according to NSW EnergyCo, the REZs will '*host community benefits through **strategic planning and best practice engagement and formalised benefit sharing arrangements.***'

Although the Guideline also states that '*some development outside of the REZs will be required to support a transition to renewable energy*', the only way that the objectives of the REZ policy can be achieved where a renewables development occurs outside a REZ is to require the proponent to demonstrate:

- 1) that the proposed development would not be feasible in a REZ (i.e. it is 'required' outside the REZs);
- 2) that the proposed site has fewer environmental, heritage and land-use constraints than other available land (including alternative sites within REZs);
- 3) that strategic planning regarding these developments and their cumulative impacts has been conducted on par with what would be expected in a REZ; and
- 4) that appropriate neighbourhood benefit sharing arrangements have been formalised that are on par with or exceed those that would be provided by equivalent projects within a REZ.

The Applicant has not demonstrated these matters. In particular, the application contains no consideration of potential alternative locations (either within REZs or elsewhere outside them). Further, the Applicant's unwillingness to engage with the issue of cumulative impacts from the other proposed solar farms in the Loomberah locality is evidence of its complete lack of strategic planning. I note that in the NSW Government Response to the NSW Agriculture Commissioner's 2023 report on renewable energy generation and agriculture in NSW, the Government indicated in principle support for the following requirement: '*[t]he NSW Government **should coordinate an engagement***

process for projects outside REZs where multiple renewable developments are proposed in a local area - to reduce stakeholder fatigue and encourage a more consistent approach to sequencing, local economic development and approaches to accessing housing, labour and ancillary services.'

In particular, the Government response included a commitment to *'look for opportunities to improve consultation and to brief affected communities on the planning process **in circumstances where multiple projects are proposed in a local area**'*.

This recommendation and the Government response clearly recognise that it would be a poor public policy outcome if projects outside REZs are allowed to proceed with fewer requirements than those within REZs - in particular, requirements for minimising or mitigating detrimental impacts on the local community (for example, with no strategic planning, cumulative impacts assessments or formalised benefit sharing programs). Such an outcome would incentivise developments of this nature outside REZs rather than within them as developers look to minimise costs, which is counterproductive from a public policy perspective and against the public interest. This is clearly the case regarding the proposed Middlebrook Solar Farm, with the Applicant even stating to the IPC that it was actively looking for a site outside of a REZ zone so as to 'limit the competition' (IPC meeting with the Applicant on 2 September 2024, Transcript p 7).

Thank you for your consideration.

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