

TASMANIAN PLANNING COMMISSION



Background report

Draft working paper on strategic planning considerations for wind farms

prepared by the Cellars Hill Wind Farm

Development Assessment Panel

July 2025

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Introduction

As part of preparing the Assessment Criteria the Panel is interested in receiving feedback on a range of matters, including the scope and purpose of assessment criteria that address a range of strategic planning and policy matters.

This background paper provides a broader explanation of why assessment criteria have been identified as being required, what general assessment frameworks may be suitable and how these matters may be addressed in the preparation of a Major Project Impact Statement (MPIS). Some of these issues have been raised in submissions received by the Panel to date.

This paper has been prepared for the purposes of generating feedback through this part of the process and does not form part of the draft Assessment Criteria or the final position of the Panel on a matter.

It is envisaged that following the consideration of feedback on the matters raised in this paper the working paper will be finalised, and this input will also be used in the development of guidelines for the preparation of a Major Project Impact Statement for wind farms that is currently underway.

Purpose of Assessment Criteria

The Assessment Criteria which are to be addressed by an MPIS for a wind farm are derived from both the matters raised in the advice of participating regulators and the relevant land use planning matters identified by a Panel.

The identification of relevant land use planning matters are the matters that the Panel consider are reasonably required to enable it to properly assess whether the use and development of the proposed major project would be an effective and appropriate use and development of land. This is not intended to represent a complete assessment of the level or actual effect a project may have on a matter.

Many of the topics that the assessment criteria address are related to whole of system, cumulative or strategic planning considerations. Generally, these are grouped under a section of the assessment criteria referred to as Section 1, Policy context and strategy. The matters addressed by assessment criteria are scoped to align with other separate elements that the Panel has to consider in determining whether to grant a major project permit, such as:

- furthering the Schedule 1 Objectives of the *Land Use Planning and Approvals Act 1993* (LUPA Act), and
- not contravening a State Policy.

In determining if a project satisfies an assessment criterion, a Panel may consider that matter in light of the advantages and disadvantages of the project as a whole. While each criterion is to be satisfied for a permit to be granted, the Panel anticipates that the assessment of many of the criteria may be affected by the characteristics and attributes of the project as a whole.

Energy and industry strategy

The capacity for Tasmania to expand the level and mix of its on-island electricity generation, through greater use of its comparatively strong wind resources along with other forms of generation has been identified as a key element in:

- putting downward pressure on wholesale electricity prices,
- industry development, and
- reducing greenhouse gases.

Where a MPIS for a wind farm project is addressing how the site and the project contribute to broader policy and strategy objectives, information can be provided on how the site/project relates to actions and strategies being progressed across regions, groupings of councils, within Government, and through agencies undertaking whole of electrical system and transmission network planning.

Information provided by the proponent in an MPIS may relate to:

- State or regional strategies for industry development and development of energy intensive sectors that require or benefit from reliable renewable electricity,
- State or regional strategies for the generation of renewable electricity and the development of renewable energy infrastructure,
- State and national policies for the reduction of greenhouse gas emissions and renewable energy capacity,
- the key characteristics of the project site and broader area identified as part of prospective or future Renewable Energy Zones, and/or
- network planning strategies and plans prepared by TasNetworks or the Australian Energy Market Operator.

Addressing economic effects

There is currently over 6000MW of new wind capacity formally proposed or permitted in Tasmania. The actual supply of additional wind energy will be in response to demands in the economy. Increases to the on-island wind capacity is forecast to provide a range of direct and broader economic benefits to industry and the State economy.

Where a MPIS for a wind farm project is providing information on the economic benefit a proposed project may have for the Tasmanian community, this is to focus on the 'net' benefit that results from the project in comparison to an alternative likely wind development program. This should take the form of an assessment of net economic benefit, at a whole-of-State level, arising from the supply of electricity to the market on a 'with-project' and 'without-project' whole-of-State comparison basis. This would take into account how the electricity market could reasonably be supplied with the service over a development period of say 20 to 30 years.

It is acknowledged that the complex nature of medium-term demand for and supply of on-island electricity generation in Tasmania means that a MPIS is only likely to be able to provide only general information on the potential net economic benefit to the

Tasmanian community of a wind farm project, in comparison to outcomes that would occur under a 'without project' scenario.

A MPIS may consider that the net economic benefit from an individual project proposed is marginal or very moderate in comparison to how wind energy in Tasmania is likely to be delivered without the project. In that case a MPIS may state this, explain why this is the case and not undertake an assessment of net economic benefit.

While many of the economic effects of a wind farm project on communities are at a regional or local level, a description of regional or local level economic activity associated with a project, while important, is separate to and not an indicator of the total net economic benefit to Tasmania as a whole. A MPIS should provide a description of the economic activity over the short to medium term timeframe that could be generated by the project and the local or regional significance of this activity.

Addressing cumulative effects

An assessment of the compounding or cumulative effects of a project may be required where either wind farm projects or related and required projects, such as supporting transport or transmission infrastructure, are likely to contribute to, or compound either beneficial or adverse effects.

At the stage of preparing an MPIS, an assessment of cumulative effects may involve:

- noise,
- landscape and visual effects,
- places or items of cultural significance,
- endangered or migratory species,
- significant ecosystems or communities,
- significant adverse network congestion, and
- impact on transmission infrastructure including future investment that may be required that enable energy to be dispatched.

The time period and spatial area related to an assessment of cumulative effects will be derived from the characteristics of the specific matter that requires assessment as well as the scale of the effect.

For example:

- the assessment of cumulative noise effects would focus on sensitive receivers whose location is likely to overlap with noise from other or future projects.
- an assessment on biodiversity effects may relate to the home range of a species population over the relevant impact period.
- an assessment of visual impacts may include all wind farms and related development that have overlapping viewsheds.

The level of detail and the framework used to assessment any cumulative effects should be proportionate to the scale, significance and certainty associated with the relevant matter. The characteristics of some matters may mean that a 'strategic' level of assessment and information may be appropriate. For other matters where there is a greater level of certainty a more detailed and specific assessment may be suitable.

For example:

- where a wind farm or a group of wind farms requires or is generating a demand for augmented or new transmission infrastructure, as the route and corridor associated with that infrastructure may not be known a strategic level of assessment of effect may be suitable.
- where a wind farm is nearby other existing or permitted wind farm projects, as the location and specification of turbines is known, a detailed and specific assessment of cumulative noise or landscape/visual effects may be suitable.

The relevant wind farms or related projects that could be suitable to include in an assessment of cumulative effects may include:

- existing wind farms and transmission assets.
- wind farms and related infrastructure that has a permit under the LUPA Act.
- wind farm or transmission projects that have some status under Tasmania's Resource Management and Planning System (e.g. a notice of intent or application for a permit submitted under the LUPA Act & *Environmental Protection and Pollution Control Act 1994* or declared as a major project under the LUPA Act).

Delivered Cost of Energy

One of the 'four pillars' of Tasmania's renewable energy coordination framework is 'to deliver the least cost and optimally located generation and transmission to meet load where it is needed'.¹

The capacity to provide additional, reliable and secure electricity as a service at the lowest cost is a core aim of the Integrated System Plan for Australia's energy transmission, including' identification and development of Renewable Energy Zones in Tasmania.

At a project level, the capacity of a site, a location and a wind farm project to provide the basis for a low-cost form of renewable energy at a whole system level is a core element of consideration to determine if a project is an effective and appropriate use and development of land.

The Tasmanian Government and its energy companies' submissions to the 2024 Joint Select Committee on electricity matters, recognised that:

¹ Page 9 Renewables, Climate and Future Industries Tasmania, *Renewable Energy Coordination Framework 2022*, accessed from https://recfit.tas.gov.au/__data/assets/pdf_file/0009/489690/Renewable_Energy_Coordination_Framework_May_2022.pdf

- greater wind and solar generation will provide the lowest cost form of new generation for additional on-island load,
- the arrival of new generation will help meet Tasmanian growing on island demand as well as creating a more vibrant and competitive wholesale market,
- wind farms using Tasmania natural advantage in wind resources will contribute to putting down pressure on wholesale prices, and
- reductions resulting from lower wholesale costs will be in part offset by the increased networks charges needed to support new generation and new interconnection.

The likelihood of Tasmania's electricity consumers (existing and new) and the broader Tasmanian community benefiting from new electricity generation is in part related to a generation project having a comparatively low total cost relative to the gross increase in energy dispatched. This in turn contributes to both a lower wholesale energy price and a lower cost, better optimised transmission and system investment.

The closer the actual delivered cost of a wind energy project is to being in the bottom half or third of projected costs across the south-east jurisdictions of the National Electricity Market, the more likely it is that new generation will contribute to beneficial outcomes for Tasmanian electricity consumers and be an overall economic benefit to the Tasmanian community.

The cost of delivered energy is strongly related to the quality of the wind resource and average wind speed levels over time. Small changes in the quality and level of kinetic energy from wind can lead to relatively large changes in the cost of energy. Information on historic or future 'capacity factors' for wind generation are not a suitable means for assessing or comparing the quality or level of a wind resource. Other factors which may contribute to the delivered cost of energy include:

- total network integration costs,
- the degree to which there are economies of scale and scope in energy production, and
- changes in the total output of low-cost renewable energy where the output of other generators is physically constrained and therefore offset due to the output of the new project.

These factors relate to the total system costs of delivering energy, not the prices at which energy from a development is sold, which is set by the dispatch and bidding processes of the National Energy Market (NEM).

Increasing the geographic diversity of generation, increasing the overall level of on-island supply of renewable energy and improving the security of supply within Tasmania would also provide economic benefits to electricity consumers and the Tasmanian community.

For these reasons, assessment criteria and a MPIS that address the criteria should not focus solely on delivered cost of energy, as this would not encompass the wider economic effects of a wind farm development.

Electricity infrastructure and network congestion

TasNetwork's submission to the 2024 Joint Select Committee on electricity matters, in part states that:

Effective planning and coordination of the location of any new renewable generation will also be key to minimising the amount of any network investment and maximising net benefits to the Tasmanian community arising from an increase in Tasmania's renewable generation capacity.²

The Objectives of the LUPA Act in part include:

- to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land; and
- enabling the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community.

Regardless of the scope of a wind farm project, the effect or the cumulative effect that a project and related infrastructure has on:

- the orderly and coordinated provision of infrastructure that benefits the Tasmanian community; and
- the social and economic wellbeing of Tasmanians as well its effect on the environment,

are core land use planning matters.

The economic effects of augmentation and investment in the shared transmission network (or other public infrastructure) directly in response to single or multiple wind-farm projects, is a relevant land use planning matter. This includes the allocation of costs and benefits to the Tasmanian community and electricity consumers.

In some locations the size and scale of single or multiple wind farms may lead to a direct need, or contribute to a cumulative demand, for upgraded or new electricity-consumer funded infrastructure. Investment in new or upgraded shared transmission infrastructure may result in higher prices for Tasmanian electricity consumers ahead of, or in excess of, potential benefits in the form of a lower energy price component of the electricity-price building block.

In this regard, a particular issue that needs to be considered is the level of network congestion that may limit the dispatch of electricity from a generator to the shared transmission network, which is a normal everyday feature of electricity network infrastructure.

The sub-optimal and adverse economic outcomes for electricity consumers resulting from network congestion under the open access regime of the NEM is outlined in a range of national papers including the AEMC's Transmission Access Reform consultation paper 2024, which in part states:

² Page 8, TasNetworks, *A submission to the Joint Select Committee on energy matters in Tasmania*, 30 January 2024, accessed from https://www.parliament.tas.gov.au/__data/assets/pdf_file/0033/78783/6.-TasNetworks.pdf

New generation and storage will continue to locate and operate in ways that are inconsistent with minimising total system costs. One likely consequence is elevated congestion, which means electricity cannot be dispatched to meet demand at the lowest possible cost. In turn, this will drive the requirement for more transmission investment to alleviate the congestion, which would not have been needed if the investment and operation of generation and storage had been efficient. The cost of this additional transmission investment is borne by consumers.

...ISP modelling will perpetually adjust in response to development on the ground – and the adjustments are likely to be more costly than if investment had occurred in line with the original plan and network investment.³

The factors leading to network congestion are related to the dispatch and network access rules of the electricity market and many of the effects on future investment and market behaviour are unlikely to be relevant to considering generation projects under the LUPA Act.

However, the effects arising from network congestion may be relevant where it has the potential to significantly impact the whole electrical system or economic outcomes, such as:

- Where significant congestion occurs and existing generators are curtailed due to the output of a new generator, the gross change in the level of energy dispatched may be relevant rather than that solely of the new project.
- Where a higher level of congestion exists that prevents electricity being dispatched to meet demand at the lowest cost, this may lead to investment in more transmission infrastructure and the costs of this investment is generally borne by existing consumers in the network component of their bill.

For some wind farm projects there may be no, or negligible, risk of the project contributing to network congestion.

The level of and potential for network congestion to occur and the effect this has on either total energy dispatched or consumer-funded transmission infrastructure investment may only be able to be addressed in a general manner.

It is likely that the advice of TasNetworks, and access to information it uses for its transmission planning processes, will be required.

As, at the wind farm planning stage, it is likely that there may be a lag between costs occurring and benefits being realised, only general information on the potential economic effects of a project may be available.

The current and future development of Renewable Energy Zones and the ongoing transmission planning work of TasNetworks will be an important source of

³ Page 87, AEMC, Transmission access reform, Consultation paper, 24 April 2024, accessed from <https://www.aemc.gov.au/sites/default/files/2024-04/Transmission%20access%20reform%20-%20Consultation%20paper%20-%20April%202024.pdf>

information for an MPIS to address criteria related to infrastructure coordination and its economic effects.

In relation to the above discussion, the requirement for a Panel to consider how a project, or the cumulative impact of a project, may affect the economic wellbeing of the Tasmanian community in the context of the Tasmanian planning system, provides information that does not conflict with the processes that occur under Australia's electricity market. For example, a Regularity Investment Test for additional transmission infrastructure assesses the overall market benefits that results to a combination of energy producers, transporters, and consumers across the wider NEM and is not specific to the well-being of the Tasmanian community.