Renewable Energy Planning Framework

This document answers frequently asked questions about the Renewable Energy Planning Framework and assessment of renewable energy projects.

General

Why has the NSW Government prepared the Renewable Energy Planning Framework?

As NSW transitions to renewable energy, it is increasingly important for the planning system to operate efficiently to ensure a fast and measured rollout of infrastructure while also being equipped with the tools to assess and manage the impacts that come with it.

A more robust policy framework was required to help accelerate planning decisions, improve the consistency and transparency of decision-making and set clear expectations for the industry and communities about how issues will be assessed.

The framework also addresses recommendations of the Electricity Supply and Reliability Check Up and the NSW Agriculture Commissioner's report on renewable energy generation and agriculture.

What was the Electricity Supply and Reliability Check Up report?

In 2023, the NSW Government commissioned an independent Electricity Supply and Reliability Check Up report to see how the NSW Government was progressing with the renewable energy transition, as set out in the state's energy transition plan (known as the Electricity Infrastructure Roadmap).

The NSW Government responded to the report and committed to enhancing the planning system by providing clearer guidelines for large-scale renewable projects and community benefit sharing.

What was the Agriculture Commissioner's report and how does the framework respond?

The NSW Agriculture Commissioner's review of renewable energy development and its interactions with the agriculture sector was released in March 2023.

The Commissioner concluded that renewable energy development is not in conflict with agricultural land at a scale that would materially affect the NSW state agriculture output and that the policy

and assessment framework is broadly capable of dealing with localised land use conflicts and impacts.

The framework fulfils several recommendations made by the Commissioner, specifically:

- the Private Agreement Guideline includes template agreement clauses and guidance to assist landholders who are thinking about hosting energy development on their land
- the Transmission Guideline provides further guidance for the transmission sector, including approaches to community engagement.

Development of the framework also included consideration of insurance risks related to renewable energy development.

What types of development does the Framework apply to?

The framework comprises a series of guidelines and supporting documents to guide the development and assessment of large-scale wind and solar energy, battery energy storage systems, hydrogen and large-scale transmission infrastructure.

For more information, refer to Figure 1 in the overview of the Renewable Energy Policy Framework.

When does the Framework apply?

Some parts of the framework will apply immediately, while others are subject to transitional arrangements. The arrangements are outlined in detail in the *Renewable Energy Planning Framework Transitional Arrangements* factsheet.

How did the department consult the public when preparing the Framework?

The framework has been informed by extensive community and stakeholder consultation.

The draft framework was exhibited for an extended period of 77 days, from 14 November 2023 to 29 January 2024.

Public consultation included a series of town-hall style meetings hosted by departmental staff in regional NSW and briefings with other key stakeholder interest groups.

The department received 379 submissions on the draft framework during public exhibition. 276 of these submissions were from individuals. All the submissions are availble on the NSW Planning Portal.

What changes were made to the Framework following public exhibition?

Key changes include:

- revision of setbacks for wind turbines
- revision of visual magnitude thresholds and viewpoint sensitivity levels to be consistent between development types
- requiring proponents of transmission projects to consider viable project options (including undergrounding) in the scoping report
- addition of a benefit-sharing rate for battery energy storage systems and guidance on how benefit-sharing rates should be distributed to communities
- simplification of the private agreement guideline to focus on key issues.

For further details, see the Renewable Energy Transition Update.

The Large-Scale Solar Energy Guideline was released in 2022. What changes have been made?

The department has made minor updates to the Large-scale Solar Energy Guideline including:

- introducing guidance on how to consider impacts on the development potential of neighbouring land
- replacing benefit sharing advice with reference to the new Benefit Sharing Guideline
- replacing advice on private agreements with the new Private Agreement Guideline
- introducing a decommissioning calculator to enable applicants and landholders to estimate likely decommissioning costs
- updating the Technical Supplement for Landscape and Visual Impact Assessment to align with other development types, including updates to magnitude thresholds, introduction of a more proportional assessment approach, and further guidance on the definitions of dwellings and primary views.

Why doesn't the Benefit Sharing Guideline apply to transmission infrastructure?

The Benefit Sharing Guideline does not apply to transmission infrastructure projects as there are existing mechanisms in place. Under the Strategic Benefit Payments Scheme, benefit sharing payments are available to private landholders who host certain new major high-voltage transmission

projects that are critical to the energy transition. Under the scheme, landholders will receive annual payments for a period of 20 years.

Noise impacts

Will I be able to hear wind turbines from my house? Will this impact my health?

The operation of wind energy developments can cause noise that is intermittently heard above the noise levels of the existing environment. Wind turbines also emit infrasound which is sound at very low frequencies. However, this is no different to other forms of equipment and machinery including trucks and agricultural equipment.

The National Health and Medical Research Council maintains that there is no consistent evidence of a link between wind turbines causing adverse health effects.

Wind energy developments must comply with an operational noise limit of 35 d(B)A at people's homes in quiet rural areas. This is equivalent to sound levels in a quiet library and less than a household refrigerator.

Risks and Hazards

Do transmission lines pose a threat to human health?

No. While transmission lines emit low magnetic fields, these are equivalent to those found in common household appliances like vacuum cleaners and do not pose a risk.

Will having a renewable energy development next door to my farm increase the premiums on my public liability insurance?

At this time, the Insurance Council of Australia has found no evidence that premiums for public liability insurance will increase if a renewable energy development is located next door to a farm. Further, there is no evidence that owners of neighbouring farms will be prevented from obtaining an appropriate level of cover.

For more information about insurance related matters, please see the Insurance Council of Australia's statement regarding farm insurance and energy infrastructure.

Can broken solar panels contaminate soil and water?

The metals in solar panels (including lead, cadmium, copper, indium, gallium and nickel) cannot be easily released into the environment. This is because metals such as cadmium telluride or cadmium

sulfide are enclosed in thin layers between sheets of glass or plastic within the solar panel. Because of this, the use of metals in solar panels has not been found to pose a risk to the environment. To readily release contaminants into the environment, solar panels would need to be ground to a fine dust.

What is blade throw? Am I at risk?

Blade throw describes when a structural failure occurring in the blade of a wind turbine during operation results in the entire blade or part of a blade detaching and being thrown into the surrounding area. Blade throw is extremely rare and does not pose a significant threat to human safety. Such failures are virtually non-existent in modern turbines due to better engineering standards and the use of sensors and safety mechanisms.

All applicants are required to undertake an assessment of operational risks from potential blade throw which includes incorporating appropriate setback distances from residences, roads and battery storage facilities as a risk management measure.

Do wind turbines 'fan' bushfires?

Under normal operating circumstances, it is extremely unlikely that a wind energy development can adversely affect a bushfire. Local wind speeds and direction are already highly variable across landscapes affected by turbulence from ridgelines, tall trees, and buildings. Wind turbines must also be shut down in the event of a bushfire to enable safe firefighting responses.

Do transmission lines cause bushfires?

When planned and maintained properly, high voltage overhead transmission lines do not pose a risk of igniting bushfires. Most bushfires are caused by a complex interplay of factors such as weather conditions, human activity, and natural events like lightning strikes. Where bushfires in Australia have been reported to have been caused by transmission infrastructure, these are usually ignited by distribution powerlines or equipment below 66kV, not those in the voltage ranges of 110kV and above.

Do renewable energy developments increase risk to aviation safety or aerial firefighting?

The operational risks presented by wind turbines to aerial firefighting activities are not considered to be any different to that of a communications tower or other similar structures. Aerial firefighting can continue to be undertaken around wind turbines if appropriate strategies, emergency plans and communications protocols are in place.

Undergrounding Transmission Lines

Can transmission lines be built underground?

While it is possible for transmission projects, or sections of transmission projects, to be located underground to help avoid and mitigate some impacts of a project, the benefits are largely outweighed by technological challenges, environmental impacts, land use conflicts and financial costs. This cost is passed on to energy consumers and is therefore an important factor in project design.

Benefit Sharing

How will local communities benefit from the proposed changes?

The Benefit Sharing Guideline establishes a clear and consistent model for the distribution of benefits to these communities. It will generate an estimated $414 million for communities over 25 years in REZ areas alone. This will ensure regional communities continue to see local improvements from the state's ongoing transition to renewable energy.

What about other places that will host renewable energy projects outside REZ areas? Is there an estimated community benefit for these communities over the next 25 years?

Communities outside of REZ areas will receive benefits based on the constructed capacity of renewable energy projects.

The amount of renewable energy development that will occur outside REZs is less certain than that inside the REZs. However, a community near an average-size wind energy project can expect to receive benefits of around $18 million under the guidelines.

Decommissioning and Waste Management

Why doesn't the NSW Government administer bonds and financial securities for rehabilitation and decommissioning?

The NSW Government has carefully considered whether decommissioning bonds should be required for large-scale renewable energy projects. A detailed response to this issue can be found in the Renewable Energy Transition Update.

Ultimately it was determined that the risks and costs of decommissioning are best left to the industry and landholders through commercial negotiations, particularly as the cost of

decommissioning is heavily dependent on what the host landholder is willing to accept at the completion of the project. For example, if a landholder wishes to retain access roads and cabling, the cost to decommission a single turbine could be as little as $3000 once materials are recycled and resold.

The framework includes a Private Agreement Guideline and decommissioning calculators to help to inform landholders of key matters relating to decommissioning that they should consider as part of the negotiation process and to enable them to estimate likely costs.

The NSW Government will continue to enforce the decommissioning and rehabilitation conditions of approval for all large-scale wind and solar projects and will monitor the effectiveness of the decommissioning calculators over time.

What happens if a company goes bankrupt and cannot afford to remove the infrastructure?

In this situation, the obligations may fall to the landholder. This is because the requirement to decommission and rehabilitate a project applies to the land rather than any company.

Notwithstanding, landholders may choose to request a financial assurance (bond) from the project developer to ensure the project can be decommissioned. This is a commercial matter to be considered when entering into a private agreement to host the project infrastructure.

Unlike mining projects, almost all investment in renewable energy happens upfront. Coupled with relatively small decommissioning costs, this means the ongoing risks are extremely low and the cost of decommissioning can be recuperated in as little as 2 years of operation.

Cumulative Impacts

How will the increased demand for workforce accommodation and local services be managed?

As outlined in the Renewable Energy Transition Update, the NSW Government is undertaking strategic and REZ-wide cumulative impact studies to understand the potential pressures on local housing markets and services due to population and workforce increases. The outcomes of these studies will be used to target solutions to where these are needed most to better support our energy transition.

The Department also undertakes a rigorous assessment of each individual proposal, including potential impacts relating to local infrastructure demand, housing and workforce accommodation

and cumulative impacts. The Department will continue to set conditions for all large-scale renewable energy projects to ensure that any increased pressures on housing accommodation and services are appropriately managed. This might include requirements for applicants to provide temporary accommodation for their workforce.

How will impacts to the road network be managed, both locally and across the State?

The NSW Government is committed to upgrading road intersections and pinch-points along the State road network to enable the transportation of large renewable energy equipment from our ports to REZs.

In considering the merits of any state-significant renewable energy project, the Department also requires an assessment of potential traffic and transport impacts on the local road network, including any cumulative impacts.

The Department will continue to set conditions for all large-scale renewable energy projects to ensure that traffic and transport impacts are appropriately managed. These conditions typically require applicants to undertake road upgrade works and to remediate any damage to the local road network caused by construction.

Engagement

How can I have my say about a large-scale renewable energy or transmission project in my area?

Once an application for State significant renewable energy or transmission infrastructure is lodged in the planning system, the Department will exhibit the project's Environmental Impact Statement for at least 28 days. You may make a written submission during this time online through the NSW Planning Portal.

Agricultural Land Use

Are renewable energy developments consuming the best agricultural land in NSW?

The NSW Agriculture Commissioner has found that renewable energy development is not in conflict with agricultural land use at a sufficiently large scale to materially affect the NSW state agriculture base.

Nevertheless, the Large-Scale Solar Energy Guideline requires applicants to avoid siting solar energy projects on important agricultural land as far as possible. Large-scale wind energy and transmission projects generally have fewer impacts on agricultural farmland as these types of development have less density than solar energy projects.

Does the solar guideline consider State Significant Agricultural Land mapping?

At this time, the Department of Primary Industries' State Significant Agricultural Land (SSAL) mapping has not been finalised and the NSW Government has yet to decide how the SSAL mapping might be used in the planning system.

Consequently, the State Significant Agricultural Land mapping does not apply and the solar energy guideline relies on existing datasets including Land and Soil Capability (LSC) mapping and Biophysical Strategic Agricultural Land (BSAL) mapping.

LSC mapping can be viewed on the NSW Government's SEED portal and BSAL data can be downloaded from the department's website.

Do solar panels or wind turbines pose a threat to livestock?

There is limited evidence to suggest that solar panels or wind turbines pose a threat to livestock. Grazing and cropping can continue right up to the base of a wind turbine, and to the edge of hardstands and access tracks.

There are also many examples where large-scale solar developments have successfully co-located with existing agricultural practices, including sheep grazing, both in Australia and internationally. Solar panels can offer shade for sheep, protection from the elements and green pasture during droughts.

Waste Management, Circular Economies and Embodied Emissions

Will wind turbines and solar panels just end up in landfill?

Approximately 85-94% of a wind turbine's mass is recyclable. This recovery rate is well above the national average for commercial and industrial waste streams (57%) and exceeds the National Waste Policy Action Plan target of 80% by 2030. While some residual waste materials (such as fibreglass and carbon fibre) are difficult to recycle, there are innovative solutions emerging to sustainably manage this waste and avoid its disposal into landfill.

Up to 95% of the materials used to make a solar panel can be recycled. However, advanced technologies are required to recover and recycle resources effectively. These solutions are emerging globally, and the NSW Government is committed to supporting new technologies and techniques. Through the NSW Circular Economy Policy Statement, the NSW Government has already:

- committed to delivering a scoping study for photovoltaic panel and battery system reuse and recycling to assist organisations in the development of end-of-life solar programs
- awarded $10 million through a circular grants program to support collaborative projects that trial better reuse and recycling of solar panels with a circular economy framework
- allocated $13 million to a Circular Innovation Fund to support research into new recycling technologies and material uses, and opportunities to pilot them in government projects.

Why isn't the NSW planning system doing more to influence manufacturing processes and conditions for solar panel and batteries produced overseas?

The matters that a consent authority can consider when determining an application are outlined in Section 4.15 of the *Environmental Planning & Assessment Act 1979*. These include the positive and negative environmental, social and economic impacts of a development and whether that development would be in the public interest. While it is acknowledged that the employment and processing standards of overseas manufacturers are an important ethical issue, this is not a matter that can be considered by the NSW planning system and is outside the scope of what the consent authority can consider or influence in decision-making.

Do renewable energy generators such as solar panel and wind turbines contain embodied carbon?

Yes, solar panels, wind turbines and other renewable energy generators contain embodied carbon. A large portion of this comes from upstream processes including raw materials extraction, materials production, manufacturing and installation.

However, renewable electricity generators have significantly lower levels of both operational and total embodied carbon than traditional forms of electricity generation (such as coal-powered electricity sources). Renewable energy sources are therefore critical to help to reduce reliance on fossil fuels and achieving the NSW Government's net zero target.

Do wind turbines take several years to recoup the energy used to manufacture them?

The amount of time for a wind turbine to displace the amount of carbon used in its direct manufacture, transport, installation, operation and decommissioning is called the 'carbon payback' period. While the carbon payback period of wind turbines can vary depending on several factors, a report for the UN Intergovernmental Panel on Climate Change found the median payback time for a single turbine is approximately 5.4 months. The typical expected operating lifespan of a turbine is approximately 25-30 years.

Other

Does a critical State significant infrastructure declaration allow private wind and solar developers to forcibly acquire my land?

No. A critical State Significant Infrastructure declaration only allows applicants to lodge an application without the consent of the landowner. It does not allow a private developer to access land or construct development without the consent of the landowner, nor does it grant compulsory acquisition powers.

Do renewable energy developments, like wind turbines, decrease property values?

Many studies conducted by independent organisations have not found a clear correlation between wind energy developments and declining property values. An independent report commissioned by the former NSW Office of Environment and Heritage concluded that based on the available data, wind energy developments do not impact the property values of rural properties used for agricultural purposes. The findings of this report are consistent with those of a previous study undertaken by the NSW Valuer General. Wind energy developments may also have positive impacts on property values due to the following factors:

- improved local amenities and infrastructure
- increased incomes, jobs and property demand
- drought-proof income streams from private agreements.

Although potential impacts on property values are not specifically a consideration in the planning decision-making process, there are a range of measures in place to ensure there are no significant impacts on surrounding properties. These include setbacks to protect visual amenity and ensure public safety, and stringent noise criteria.

Are there accreditation requirements for consultants undertaking environmental impact assessments for renewable energy projects?

Environmental assessments for key issues such as noise, visual amenity and social impacts are undertaken as part of a project's Environmental Impact Statement (EIS). In NSW, the EIS for State significant renewable energy projects must be reviewed by a Registered Environmental Assessment Practitioner (REAP) before it is submitted. A REAP is a qualified and skilled environmental assessment practitioner certified under an accredited REAP scheme. The Registered Environmental Assessment Practitioner Guidelines (2022) provides guidance on the criteria required to become an accredited REAP, and their role in the assessment of environmental impacts.

Who can I contact if I have further questions?

For more information about the framework, please contact us at energy.resourcespolicy@dpie.nsw.gov.au.