FACT SHEET

Wind farms in NSW

March 2016

Wind energy is a key part of the NSW energy mix and wind farms bring many benefits to regional communities. This fact sheet provides an overview of the NSW wind industry and addresses some of the community concerns.

Why wind farms?

The NSW Government is committed to providing a diverse, affordable and clean energy mix for NSW. Wind energy is a key part of that mix.

NSW has an abundance of excellent wind resources and established electricity infrastructure that makes it attractive to wind farm developers.

Wind farms drive investment and growth in regional NSW and provide alternate, non-rainfall dependent income streams for traditional farming communities.

Wind energy diversifies the energy mix and is supported under the government's cornerstone renewable energy policy, the Renewable Energy Action Plan. Increasing wind energy in NSW will also help the government meet its commitment to support the national Renewable Energy Target of 33,000 gigawatt hours (GWh) by 2020.

Key points
• Wind energy is a key part of the NSW energy mix
• Wind energy is supported by the NSW Government through the Renewable Energy Action Plan
• There is no evidence to support the claim that wind farms are harmful to human health
• Wind farms bring many benefits to the communities and landholders that host them, and provide alternate income streams that are not rainfall dependent.

Planning approvals

All wind farms are subjected to stringent planning controls and assessment criteria. Both the total capital value and the electrical power output of the project determines which consent authority assesses and determines the development application. In general:

- projects with a capital value of less than $5 million are assessed and determined by the host council(s)
- projects with a capital value of $5-30 million are assessed by the host council(s) but determined by the Joint Regional Planning Panel
- projects with a capital value of more than $30 million (or $10 million in an environmentally sensitive area) are classified as state significant developments (SSD). The NSW Department of Planning and Environment (DPE) assesses these projects, which are determined by the NSW Planning Assessment Commission.

Developers proposing to build a wind farm classified as SSD must apply to the Secretary of DPE to obtain Secretary's environmental assessment requirements - a list of social, environmental and economic requirements that must be considered by the developer during the application process.

Noise and health impacts

Technological advances have resulted in modern wind turbines that produce less noise.

Noise levels of wind farms are managed through the placement of turbines and the operational management of the wind farm. Importantly, noise standards are established through the assessment process and regulated by the government.

During the assessment of a wind farm project, the proponent has to demonstrate that noise levels at neighbouring houses are within strict limits.

There is no evidence to support the suggestion that wind farms are harmful to human health. The Australian Medical Association has advised that:

- infrasound and low frequency sound generated by wind farms is well below the level where known health effects occur
- wind turbine electricity does not involve production of greenhouse gases, other pollutant emissions or waste, all of which can have significant direct and indirect health effects.

The National Health and Medical Research Centre (NHMRC) has concluded there is no consistent evidence that wind farms cause adverse health effects in humans. The NHMRC suggests that any further health-based studies should be limited to close exposures (i.e. less than 1.5 km).

The government will continue to monitor scientific research outcomes to ensure its position reflects current evidence on any health effects, including advice from the NHMRC, National Wind Farm Commissioner and the Independent Scientific Committee on Wind Turbines.

The benefits

Wind farms provide a range of social and economic benefits to the wider community while helping to meet NSW energy needs.

Communities that host wind farms benefit from increased business, community funds and increased council revenue created during construction and operation.

Some wind farm developers use business models that allow community groups to own a share of the wind farm or take ownership and responsibility of one or several turbines. Not only does this provide financial returns to the community, it also empowers that community.

Landowners who allow wind farms on their properties receive rent from the developer. Wind farms are compatible with many traditional agricultural land uses, such as grazing, and provide alternate income streams that are not rainfall dependent.

The government supports community-driven and community-owned renewable energy projects that deliver environmental, economic and community benefits.

Safety considerations

Fire

It is extremely unlikely that wind farms cause bush fires under normal operating circumstances. Wind farms are not expected to adversely affect fire behaviour nor start fires by attracting lightning.

Lightning control systems are built into all wind turbines. If lightning strikes a turbine, the high voltages and currents caused by the strike are safely carried underground.

Wind farms can operate on days of fire bans and their presence does not impede firefighting operations from the ground or from the air. The Rural Fire Service advises people living near wind farms to have a bush fire survival plan.

All SSD wind farm developments are required to develop asset protection and bushfire response procedures in close consultation with the Rural Fire Service.

Aviation

Wind farm developers throughout Australia are required to liaise with the Civil Aviation Safety Authority and the Royal Australian Air Force Aeronautical Information Service.

A wind farm proponent may be required to prepare an aeronautical impact assessment that is considered in the assessment of the project and may include consideration of the potential impacts caused by reflective lighting and infrastructure placement.

Environmental impacts

Wind farm developers must demonstrate that any impact to flora or fauna, or to the visual appearance and values of the landscape, have been considered throughout the application process. Specialist studies are conducted to understand the impacts on threatened or endangered species, migratory birds and visual amenity.

Wind farms classified as SSD must follow the 'avoid, minimise, offset' principles. That is, wind farm developers must first avoid any unnecessary impacts to biodiversity, or mitigate the impacts if this is not possible. Where larger impacts are unavoidable, the developer can apply to offset the damage by creating a conservation area of similar size and biodiversity, which will be protected and managed in perpetuity.

The visual impact of a wind farm is assessed from several vantage points including from nearby homes. Distractions from blade glint and turbine flicker are also assessed and can be managed through the careful placement of the turbines and/or through operational measures (e.g. turning the turbine off for a few minutes every day).

The manufacturing and construction of wind farms create greenhouse gases, but when fully operational they produce energy with virtually no emissions. One study has shown that the 'carbon payback period' for a

2 megawatt (MW) turbine (with a working life of 20 years) is between five and eight months (Haapala & Prempreeda 2014).

Timely decommissioning of turbines that are no longer in use is a standard condition of consent for NSW wind farms.

This does not have to mean that the wind farm is dismantled and removed - it could be that it is repowered with new turbines and given a new lease of life, as is the case with many older wind farms in Europe. The cost of decommissioning should be borne by the developer, not the landowner.

Additional information

Australasian Fire and Emergency Service Authorities Council Limited, 2014, Wind Farms and Bushfire Operations (Version 2.0), 30 October 2014

Australian Medical Association: https://ama.com.au/position-statement/wind-farms-and-health-2014

Commonwealth National Health and Medical Research Council: www.nhmrc.gov.au/health-topics/wind-farms-and-human-health

Haapala, K & Prempreeda, P, 2014, Comparative life cycle assessment of 2.0 MW wind turbines. In International Journal of Sustainable Manufacturing, Vol. 3, No. 2, 2014

NSW Department of Environment, Climate Change and Water: www.environment.nsw.gov.au/resources/communities/100948-wind-farm-attitudes-summary.pdf

NSW Department of Environment, Climate Change and Water:

www.environment.nsw.gov.au/resources/households/WindEnergyfactsheet.pdf

NSW Department of Planning and Environment: www.planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy

NSW Division of Resources and Energy: www.resourcesandenergy.nsw.gov.au/investors/investment-opportunities/renewable-energy/renewable-energy-technologies/wind

RM8 publication number: PUB16/180