

wind farm guide



for host landholders

A low-angle photograph of a white wind turbine against a blue sky with wispy clouds. The foreground is filled with tall, golden-brown grasses. The turbine's tower and nacelle are visible, with one blade extending towards the top left of the frame.

Overview of wind energy in NSW
Prospecting
Understanding potential impacts
Negotiating agreements
Planning and Development
Engaging with local stakeholders
Construction
Operation
Decommissioning
Where to go for more advice

This Wind farm guide for host landholders

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Foreword

Increasingly, regional NSW is being confronted by land use change as our food and fibre producing lands also begin to play a role in meeting the needs of our energy dependent world. In addition to the expansion of coal mines and, more recently, coal seam gas – we are also now important players in the development of the wind, solar and biofuels industries. These changes are confronting and must not be embraced without first answering serious questions about how they will impact on our farmers and their local communities.

NSW Farmers is acutely aware of the angst these changes are causing in rural communities, and the legitimate concerns farmers hold about impacts on their businesses. That's why we're lobbying for frameworks that safeguard our members' interests and give communities a voice in the development process. At the same time, we're making sure members have the information they need to make informed choices when dealing with energy and resource companies.

NSW Farmers has not been given a direction by its members to either support or oppose wind energy, but we do see ourselves as having an obligation to inform members who are approached to host turbines. It was with that in mind that we commissioned the *Wind Farm Guide for Host Landholders*.

The decision to host wind turbines will be one of the most complex and long-term choices many farmers will make for their business. This document is intended as a starting point for landholders who are making that decision. While it won't contain every answer, we hope it will explain what to expect over the life of a project and help landholders ask the right questions.

The generational land use changes taking place in NSW haven't been and won't be easy. Through our lobbying role and resources like this we hope to limit the impact on farmers and we always welcome input from members about what else we can do to support them in growing the best.

NSW Farmers would like to thank all those who contributed to the development of this guide, including the NSW Office of Environment and Heritage, landholders who participated in focus group meetings and the Clean Energy Council who provided input.

Fiona Simson
President
NSW Farmers





About this guide

This Wind Farm Guide for Host Landholders (the Guide) has been produced by the New South Wales Farmers' Association (NSWFA) with funding from the New South Wales (NSW) Office of Environment and Heritage (OEH).

With increasing interest in the development of wind energy projects in NSW, a growing number of landholders are considering hosting wind turbines on their property. This Guide provides information and guidance for landholders in NSW on hosting wind turbines.

The Guide is not a legal document and does not replace legal advice. Every effort has been made to ensure accuracy in this document. However, the items are necessarily generalised and readers are urged to seek specific legal advice on particular matters and not rely solely on this text. Statements in the Guide do not necessarily reflect the opinions of NSWFA or the NSW Government.



Figure 1 Cattle grazing at Toora Wind Farm, Vic¹

1.1 Who should read this guide?

This Guide is designed as a resource for landholders who:

- are considering hosting wind turbines on their property;
- are in the process of having wind turbines developed on their property; or
- already host wind turbines on their property.

The guide provides information to assist landholders at all stages of development and operation, particularly:

- the role of landholders in the development process;
- landholder rights and responsibilities; and
- potential impacts (positive and negative) of development.

The Guide is not intended for landholders wishing to establish small wind turbines (i.e. less than approximately 10kW). For further information on small wind turbine developments refer to the OEH 'NSW Small Wind Turbine Consumer Guide'².

Crown lease developments

With regards to hosting wind turbines, Crown leaseholders may have different considerations from freehold landholders. These are discussed in Section 6.3.3.

1.1.1 Structure of the guide

The Guide is structured in a way which walks landholders through the different stages of a wind farm development, addressing the specific issues they are likely to face each phase. (see [Figure 2](#) below).

The Guide also includes (in Section 2) a checklist of questions which landholders may wish to consider and discuss with developers.

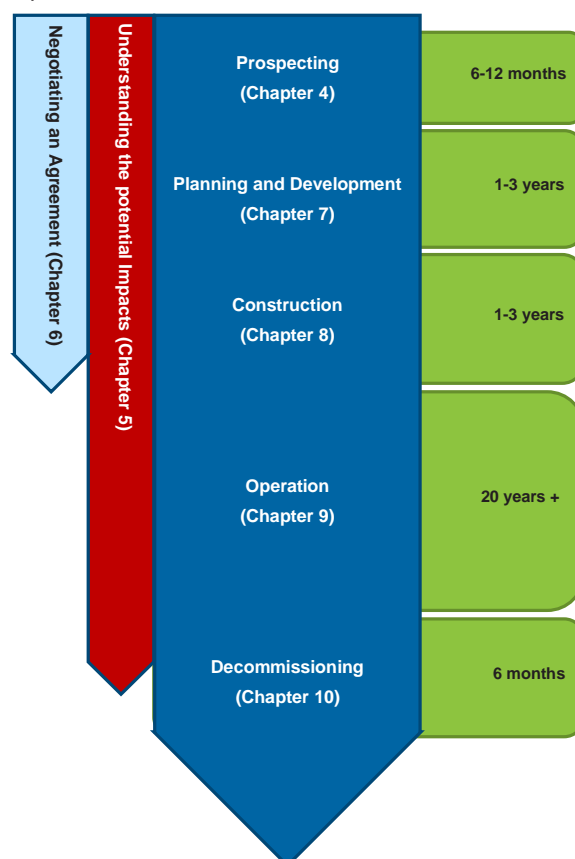


Figure 2 Phases in the development of a wind farm



Checklist for host landholders

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The following table lists common questions for landholders to ask or consider when dealing with a wind farm developer during the different chapters of this guide:

Chapter	Common questions	Addressed	For more info, go to Sections
Prospecting	• Is my property suited to wind energy? Should I approach a developer?		3.3, 4
	• What is the developer's track record with wind farm projects?		4.2
	• What size will the wind farm be? How many turbines and what generating capacity? When will it be constructed?		4.2, 4.5
	• How will the developer determine site feasibility?		4.5
	• What access arrangements will the developer require for site feasibility assessments? How often and for how long will access be required? Who will be accessing my property? What will be the biosecurity protocols? Will I receive any payments?		4.5.2, 6.2.1
	• Will a wind monitoring mast be installed on my property? What will be the footprint of the monitoring mast and how will it restrict farming activities? Will additional legal arrangements be required (eg. indemnity)?		4.5.2
	• Do I own my property or is it Crown leasehold?		5.1
Understanding the potential impacts	• Would wind turbines affect farming activities (e.g. land use, management issues, aerial agriculture, fire management)?		5.1
	• What impact would wind turbines have on land value, development, vegetation protection (PVPs) and subdivision options?		6.5
	• What other potential impacts are likely to be concerns for the community (e.g. visual, noise, ecological, transport, social/community, economic impacts)? How are these being assessed and managed?		5
	• Is it possible to go on a wind farm tour and/or meet landholders from an operational wind farm?		5
Negotiating an agreement	• Is professional advice on the legal/financial/tax issues required? Who will cover the costs of this advice?		6, 6.5
	• If multiple developers have presented proposals, how do they compare?		4.3
	• Should I form a group with other landholders?		6.4
	• Who will prepare the first draft of the lease agreement(the developer or the landholder)?		6.2.2
	• In what circumstances can parties withdraw from the agreement? What are the consequences?		6.2.2
	• Can the developer change the number or siting of turbines once the agreement is signed?		6.2.2
	• What are the key milestones in the contract? If the agreement is an option to lease, what is the process for the agreement becoming a lease?		6.2.2, 6.2.3
	• How long will the agreement apply for? How long will the wind farm be operational for? Can the agreement be renewed or extended?		6.2.2

Chapter	Common questions	Addressed	For more info, go to Sections
	<ul style="list-style-type: none"> How are payments calculated (eg. based on number of turbines, land area, generation, value of generation etc.) 		6.5.1
	<ul style="list-style-type: none"> How often will there be payments under the agreement (annual, quarterly, monthly basis)? 		6.5.1
	<ul style="list-style-type: none"> When will construction commence? When does remuneration under the agreement commence? 		6.2.2
	<ul style="list-style-type: none"> How likely is it that the development will proceed? What happens if the development does not proceed (or proceeds at a reduced scale)? 		3.3, 4.4, 6.2.2
	<ul style="list-style-type: none"> What is the value of the contract over the life of the project? Do the payments change over time? 		6.5.1
	<ul style="list-style-type: none"> What issues need to be negotiated at a preliminary stage? What matters of detail can be left until a later stage? 		6.2.2
	<ul style="list-style-type: none"> Will the developer operate the wind farm once constructed? If not what will be the process for transfer of the wind farm (and landholder 		3.3.1
	<ul style="list-style-type: none"> Will the agreement restrict any future land uses (eg. agroforestry, quarrying etc)? 		6.5.5
	<ul style="list-style-type: none"> Does the agreement adequately compensate for any production losses that may result from the wind farms operation (eg. changes to aerial agricultural that might be required etc)? 		5.1
Planning and Development	<ul style="list-style-type: none"> What level of involvement will the developer expect from landholders during the community consultation process? 		7.2
	<ul style="list-style-type: none"> Has the developer been speaking with the local council? Or any local community groups? What is the developer's community consultation plan? 		7.2.1
	<ul style="list-style-type: none"> Will a Community Consultative Committee be established? What opportunities will there be for landholders involved? 		7.2.2
	<ul style="list-style-type: none"> Have neighbours been advised of the project? If not, when will neighbours be told (and how?) 		7.2.3
	<ul style="list-style-type: none"> What will be the process for ensuring landholders have access to all reports and assessment data used during the planning approvals and environmental impact statement processes? 		7.2.1
	<ul style="list-style-type: none"> What will be the process for managing objections and complaints? Who will be responsible for responding to these? 		7.2.7

Chapter	Common questions	Addressed	For more info, go to Sections
Construction	• How long will construction take?		8
	• Who will be the construction contractor and how will they be able to be contacted?		8
	• What restrictions will construction place on farm operations?		8.4
	• How is the developer going to manage access and gate locks? Are any special biosecurity requirements required?		8.2
	• What temporary buildings and infrastructure will be required for the construction phase?		8.8
	• What control will developer have over contractors used during the construction phase?		8
	• How many people will be on site during construction? What will be the hours of work?		8
	• Will my affected land and farm infrastructure be rehabilitated/replaced following construction?		8.5
Operation	• How often will turbine maintenance occur?		9.1
	• How will emergency access to the turbines be managed?		9.1
	• Who will be responsible for obtaining the necessary insurances? Who will be legally liable for the turbines and their operation? Who will cover any increased insurance costs?		6.5.6
Decommissioning	• What will be the process for determining whether a wind farm will be decommissioned or reconditioned?		10.2
	• What is the developer's decommissioning and rehabilitation plan? How will it be funded?		10.3
	• What will be the timing for rehabilitation activities?		10.1
	• What part of the wind turbine structures will be removed and how will the site be remediated?		10.3
	• What quality assurance processes will be used to ensure that weeds are not introduced on to the property with rehabilitation plant species?		10.3



Overview of wind energy in NSW

3

This Section provides landholders with a broad overview of the NSW wind energy sector including:

- an overview of the NSW Government's renewable energy target and precinct program;
- a summary of current NSW wind energy projects; and
- the different types of companies in the wind sector.

3.1 Renewable energy targets

The NSW Government has a NSW 2021 target of 20% renewable energy by 2020. The Government has prepared a *draft Renewable Energy Action Plan* to support the achievement of this target.

3.2 Renewable energy precincts

The NSW Government has established six renewable energy precincts in areas recognised for strong wind resources. The precincts (shown in Figure 3 below) cover 46 local government areas in regional NSW.

The Renewable Energy Precincts program is a community partnership initiative designed to give local communities a voice and a stake in renewable energy development. In each precinct there is a dedicated full-time coordinator who provides "on the ground" support for the local community - including landholders.

The Renewable Energy Precincts program has provided funding for the development of this Guide in order to improve the resources available to landholders. Landholders are encouraged to contact their local coordinator for more information on the precincts program and the services it can provide. Contact details are provided at the end of this Guide.

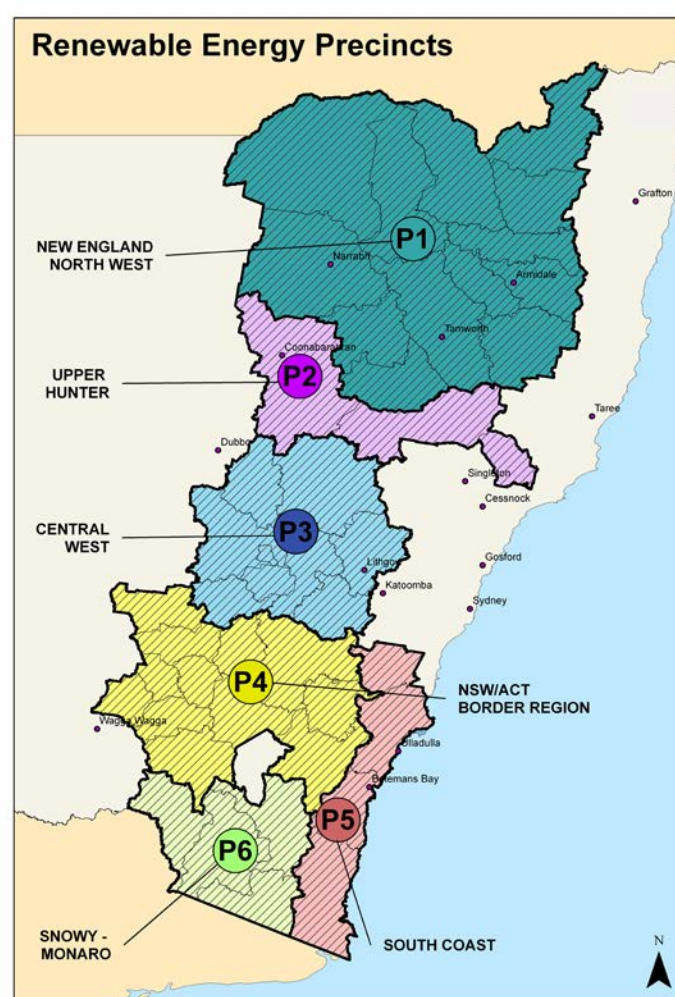


Figure 3 NSW Renewable Energy Precincts³

“It can be unsettling when you are dealing with one developer and then suddenly the project changes hands, but it’s often for the best. The different phases of development, construction and operation are best suited to companies with different expertise.”

—Comment from wind farm landholder (2012 Focus Group)

3.3 Summary of current NSW wind energy projects

NSW offers excellent conditions for wind farm development with a number of locations enjoying suitable wind conditions and good access to the electrical grid network. In 2012 there were four large-scale wind farms operational in NSW. There are however a number of additional wind energy projects which have been approved or are in the planning pipeline. Figure 4 below shows the wind speeds across NSW, current wind energy projects and projects under development.

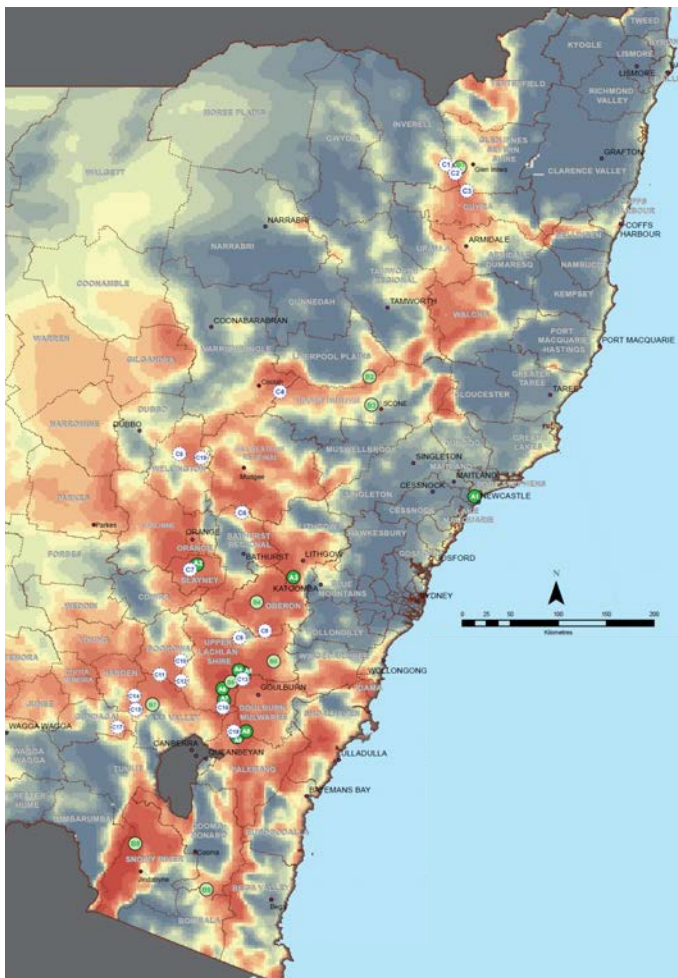


Figure 4 NSW wind speeds and wind farms 2012⁴

NSW Wind Farms

Last Updated: 19 July 2012

Average Wind Speed (80m height, 3km resolution)



Approved wind farms

Wind farm numbering in map area is from top to bottom

Application received

A Installed / construction		Turbines	C Application received		Turbines
A1	Kooragang - removed*	1	C1	Sapphire	159
A2	Blayney - installed*	15	C2	Ben Lomond - lapsed	100
A3	Hampton - installed*	2	C3	Liverpool Range	550
A4	Crookwell 1- installed*	8	C4	Bodangora	40
A5	Crookwell 2- construction*	46	C5	Crudine Ridge	80
A6	Gunning - installed*	31	C6	Flyers Creek	40
A7	Cullerin Range - installed*	15	C7	Paling Yards	60
A8	Woodlawn - installed*	23	C8	Golspie	170
A9	Capital - installed*	67	C9	Rugby	90
A10	Taralga - construction*	61	C10	Bango	200
B Construction not commenced			C11	Rye Park	110
B1	Glen Innes	25	C12	Crookwell 3	35
B2	Nowlands Gap - lapsed*	4	C13	Yass	152
B3	Kyoto	42	C14	Birrema	80
B4	Black Springs	9	C15	Collector	80
B5	Gullen Range	73	C16	Adjungbilly	25
B6	Conroys Gap	15	C17	Deepwater	10
B7	Snowy Plains - lapsed*	14	C18	Unungula	330
B8	Boco Rock	122			
B9	Silverton (off map)	598			
B10	Capital II	41			
B11	White Rock	119			

*Approved under Part 4 of the
Environmental Planning and
Assessment Act 1979 (NSW)



Figure 5 Capital Wind Farm, NSW⁵

3.3.1 The commercial wind industry

There is a developing commercial wind industry in NSW. The key types of business in the industry are:

Wind farm developers

Wind farm development companies can use a number of different models for developing wind farm projects. Some companies will be responsible for all stages of development, whereas other companies will only develop a project to a certain stage before on selling the project to another entity for the construction and/or operation project phases. Like in any industry wind farm projects can be transferred at any stage of their operational life. Planning approvals are normally transferable between project owners.

Wind farm operators

Wind farm operators are sometimes (but not always) the same entity as the wind farm developer. Wind farm operators manage the operational life of the wind farm asset (including decommissioning) and generate revenue by selling electricity output from the wind farm to the electricity market.

Electricity grid operators

Wind farms will require a connection to the electricity grid. This will normally be achieved through negotiations between the wind farm developer and the appropriate grid operator (also known as a “Network Service Provider”). The operator that the wind farm developer has to negotiate with will depend on the wind farms location and whether the connection is to the State electricity transmission network or the more local distribution network.

Electricity retailers

Normally in NSW a wind farm operator is only able to sell electricity to an electricity retailer. Commonly wind farm operators will have a Power Purchase Agreement (PPA) for the sale of some or all of the electricity generated from the wind farm to an electricity retailer. A wind farm PPA will also normally give the electricity retailer the right to claim Renewable Energy Certificates for the power generated from the wind farm. The electricity retailer on-sells the electricity from the wind farm to end-use consumers (residential, commercial and industrial consumers).



When determining whether sites are suitable for wind turbines, developers will take into consideration a number of factors, usually including the following:

- **wind regime:** wind speed and direction, as well as how the wind speed varies with height above ground and how turbulent the wind is (affected by hills and other obstructions such as tree shelter belts).
- **proximity to electrical grid:** location of nearest connection point to distribution or transmission network (building a connection to the electrical grid is very expensive therefore sites which are closer to connection points are preferable).
- **access:** suitability of roads for movement of large vehicles including trucks and cranes;
- **environmental:** cultural and heritage importance of site, flora and fauna species (particularly birds and bats), visual amenity;
- **geotechnical:** geology of site and suitability for wind turbine footings; and
- **existing land uses:** compatibility with current and planned uses.
- **community attitudes:** the level of acceptance and support for the project amongst adjacent landholders and the community.
- **available space:** the size of the holdings and distance to nearest dwellings.

4.1 Can I approach a wind farm developer?

Most wind farm developments have occurred on land where the wind farm developer has approached the landholder. There are however, examples of development occurring where a wind farm developer has first been approached by a landholder.

However landholders should be aware that not all “windy” sites are suitable for wind farm development (see factors listed above).

4.2 What do I do if I am approached by a developer?

If you are approached by a developer you will need to decide whether you want to become involved in the proposed development. At a preliminary stage relevant considerations may include:

- The reputation and track record (in Australia) of the company approaching you - are they a company you want to do business with? Can you speak with the developer's current host landholders?
- The timeline for wind farm development and how progressed the planning and assessment process is.
- What are the potential benefits of the development? What are the potential impacts (and how does the company plan to address them)? See discussion below in Section 5.
- What are the commercial terms? See discussion below in Section 6.
- Do they understand your community and the local environment? See discussion below in Section 7.2.

4.3 How to deal with multiple developers

If you have already entered into an agreement with one developer, the terms of that agreement may prevent you from negotiating with other developers. You should seek legal advice if you are unsure of your rights in these circumstances.

Dealing with multiple developers may improve your bargaining power. There can, however, be a number of factors that need to be considered when comparing offers from multiple developers. In particular the likelihood of a project coming to fruition and when you will start to receive income might be relevant. Again, legal advice may help in understanding and comparing different offers.

4.4 Probability of development going ahead

There are a number of steps which must occur before a wind farm is built. The site must be monitored and tested, environmental assessments undertaken, planning approval granted and landholder negotiations completed. All the while the project must remain commercially viable and the development company committed to the investment.

Often only a small portion of approached landholders will end up hosting turbines on their property. It is also common for projects to change in terms of scale and design from the original plans. The turbine layout can change significantly during the development phase of the project; as a result landholders may end up with a reduced number of turbines on their property, or none at all.

“When you are first approached you don’t want to get carried away, because it may not go ahead, and if it does it will be at least 5 years off. At the same time, it’s important to start to become informed, and talk with your neighbours.”

—Comment from wind farm landholder (2012 Focus Group)

4.5 Wind resource assessments

The wind resource at a site has a significant impact on potential wind farm income. Small differences in a wind resource can significantly affect actual revenue over the life of a project. Financing for wind farm development is dependent on accurate and credible wind resource data.

Significant resource assessment will therefore be required before a wind farm can be developed. A site’s potential will be assessed by first conducting wind modelling activities (analysing existing data), before actual wind monitoring is carried out (using on-site monitoring equipment).

4.5.1 Wind modelling

If good quality long-term wind data is available from a nearby site (e.g. from a Bureau of Meteorology weather station), statistical modelling can be used to take wind data over a shorter period and extrapolate into the future.

Once data for wind speed and direction is obtained for a site, modelling software can estimate the wind behaviour for the surrounding area using topographic information. This technique is only used within a few kilometres of a monitoring location, because accuracy reduces further away.

Wind resources can also be modelled using altitude weather data instead of ground measurements. These techniques are useful in identifying areas with good wind potential.

4.5.2 Wind monitoring

Monitoring masts (often called ‘met masts’) are installed at suitable representative locations to support anemometers (measuring wind speed), wind vanes (measuring wind direction) and other measurement devices. They are typically between 60 to 80 metres high and are fixed by cables (‘guy wires’). They are usually narrow (20 to 45 cm in width) and dark in colour, and so have minimal visual impact beyond their immediate vicinity. Tubular galvanised towers 10 to 15 cm in diameter may also be used.

Guy wires can have a footprint equal or greater than the eventual turbines. Because of their height, they may need a light if they are near an airport. Lattice towers may need to be metal-clad for the initial three metres to prevent people from climbing them.

Landholder access agreements developed at the beginning of the prospecting phase (see Section 6.2.1) usually include provisions for establishment of met mast towers (if needed). This can include additional remuneration for landholders.

In NSW rural zones, planning consent is required to erect met mast towers over 35m in height (other conditions also apply)⁶. Installation of a met mast may also signal to other community members that your property is under consideration for a wind farm development.

The aim of wind monitoring is to estimate how much energy can be extracted from the wind for the life of a project. Long-term measurement (over multiple years) can therefore improve the accuracy of prediction by taking account of seasonal variations and longer-term weather cycles.



Understanding the potential impacts

5

This Section aims to outline some impacts that may result from wind farm developments, keeping in mind that impacts will vary between developments.

A visit to an operational wind farm can be an extremely worthwhile exercise for landholders to get a first-hand experience of a wind farm and meet host landholders who have been through the development process.



Figure 6 Wind farm site visit⁷

5.1 Impact on farming activities

Host landholders generally find that wind farm development does not significantly impact farm operations. Some common considerations are discussed below.



Figure 7 Sheep grazing near turbines, Clements Gap Wind Farm, SA⁸

5.1.1 Land use

The land required for wind farm developments is generally minimal. Land is required for the tower (about 100 m² each) and access roads (usually gravel, between 6 and 12 m in width) running between each turbine. Depending on the development a substation may also need to be established (potential footprint up to 1 Ha). Substations will be fenced off to meet safety regulation.

Electrical cabling is buried underground (usually alongside access roads).

Remuneration from hosting wind turbines generally outweighs any loss of production. Landholders can negotiate with developers ways to minimise production losses (such as by siting turbines and roads on less productive areas of the farm).



Figure 8 Building of substation, Bungendore, NSW⁹

5.1.2 Water use

Wind farms do not use water nor is there any significant risk of ground water contamination.

5.1.3 Aerial agriculture

Wind turbines may, in some circumstances, affect aerial application of fertiliser and chemicals. Pilots may not be willing to operate in certain areas depending on:

- the number of turbines;
- the distance between turbines;
- the landscape; and
- whether the turbines are operating.

An agricultural aviation assessment by the developer can determine the effect on aerial agriculture. If capacity is reduced landholders may be able to negotiate compensation from developers to account for additional costs associated with ground spreading/spraying.

5.1.4 Fire management

Wind turbines may also reduce aerial access for bushfire management, although this risk is often offset by improved ground access.

Risks associated with fire normally have to be addressed in the project Environmental Impact Statement (EIS) and in Environmental Management Plans produced as a requirement of planning approval. Developers may also seek input from the NSW Rural Fire Service (RFS) to develop a wind farm design which minimises on-farm fire risks and is consistent with regional Bushfire Risk Management Plans.

5.1.5 Management issues

During the construction phase there may be short-term land access restrictions. Stock will need to be excluded from construction areas and new fencing may be required. This can, however, provide an opportunity for development of laneway systems for stock movement.

The construction phase will involve a large number of vehicles entering the property and without proper controls there is an increased risk to farm biosecurity and weed incursions. Landholders should therefore develop clear controls for vehicle access (including contractors) during negotiation of the lease agreement.

Host landholders generally find that once a wind farm is operational livestock quickly become accustomed to the moving turbines and are happy to graze in their vicinity and seek shelter in the shadows. In some instances activities that might attract birdlife (eg. lambing and calving) are, however, not able to occur in areas close to turbines.

For more information on construction impacts, see Section 8.



Figure 9 Laying cable, Bungendore, NSW¹⁰



Figure 10 Capital Wind Farm, NSW¹¹

5.2 Impact on amenity

Wind farms are highly visible and can attract a great deal of attention, both positive and negative due to their visibility in the landscape. The following section outlines the effects of wind farms and amenity impacts.



Figure 11 Codrington Wind Farm, Victoria¹²

5.2.1 Visual

Over the years, wind turbines have been built higher, with current projects under development involving towers of up to 120 m and height to blade tip of up to 160 m.

The grouping of turbines, positioning on hill slopes, and typical placement in an area void of other types of vegetation can affect the visibility of wind farms within the landscape. Typically in communities, some people consider wind turbines to be a positive addition to the landscape whereas others view them more negatively.

Shadow flicker

The moving blades of wind turbines cast moving shadows that when viewed through a stationary constrained opening such as a window appears as a flicker. This is commonly referred to as shadow flicker and when the sun is low in the sky the effect of shadow flicker increases. It is generally accepted that shadow flicker can only occur within 1 km.¹³

5.2.2 Dust

As wind farm development locations are usually exposed windy sites, there is potential for temporary dust nuisance during construction, and from excavated material left on site. Developers can mitigate dust generation by spraying the area with water (accessed from the site or imported). Another potential mitigation measure is to carefully spread excavated material, and seed disturbed areas as soon as possible.

5.2.3 Noise

Wind turbines generate noise via movement of the blades and internal moving parts. In recent times technical improvements have reduced noise levels. By reducing the energy lost to noise, turbines have become more efficient in converting wind into electricity.

Currently NSW uses the South Australian Wind Farms Environmental Noise Guidelines (2003) in the assessment process for approving wind farms. Under these Guidelines noise levels should not exceed 35 A-weighted decibels or the background noise by more than 5 A-weighted decibels, whichever is greater for all relevant receivers at each integer wind speed from cut in to rated power of the turbine. This is because the background noise will change with increasing wind speed. This is one of the strictest limits in the world. The noise threshold limits apply to surrounding landholders that are not associated with the wind farm (referred to as 'receivers'). Figure 12 provides a comparative analysis of the threshold with other typical noise levels.

The *Draft NSW Planning Guidelines: Wind Farms*¹⁴ also use the 35dBA criteria. The remainder of the criteria should be added i.e. "or the background noise by more than 5 A-weighted decibels, whichever is greater at all relevant receivers at each integer wind speed from cut in to rated power of the turbine".

Decibels	Equivalent
140	Threshold of pain
135	
130	
125	Jet taking off
120	
115	
110	Rock concert
105	
100	
95	Jackhammer near operator
90	
85	
80	
75	Busy city street near curbside
70	
65	
60	Busy office
55	
50	
45	
40	Quiet suburban area
35	Windfarm Guidelines Baseline
30	Quiet countryside
25	
20	Inside bedroom - windows closed
15	
10	
05	
0	Threshold of hearing

Figure 12 Relative noise levels¹⁵

5.3 Health impacts

There have been claims that noise and vibrations from wind farms make people sick ('wind turbine syndrome' or 'vibroacoustic disease'). The Australian National Health and Medical Research Council (NHMRC) released a public statement in 2010 reporting no published scientific evidence to positively link wind turbines with adverse health effects. Currently, the NHMRC is conducting a further review of scientific literature, the outcomes of which will provide guidance for public health policy and expected research. The reference group undertaking this review is likely to conclude its work by late 2013.

Wind farm lease agreement negotiations and local community pressures may cause stress and anxiety during the wind farm development process. Specialised support for rural NSW residents is available through the NSW Department of Primary Industry's Rural Support Program. The Rural Support Program aims to build the capacity and resilience of rural communities through improved knowledge, skills and practices to enable better management of future environmental and other adverse events. Contact details for the Program are at the end of this Guide.

Other resources for anyone who may be distressed also include Lifeline 131 114, Mensline 1300 789 978 and Rural Mental Health Support 1800 201 123.

5.4 Social/community impacts

Some developments may experience community opposition. Early consultation and engagement with the community to build awareness of the project can help effectively resolve concerns. Further information about engagement with local stakeholders is provided in Section 7.2.

At a general level there are strong levels of community support for wind farms in rural Australia flowing from, amongst other things, the employment benefits that result from wind energy developments.

5.5 Positive impacts

It is important that landholders weigh up the predominately negative impacts discussed above with the positive impacts listed below:

- Financial remuneration (Section 6.5);
- New access roads can provide improved access for farm management and fire;
- Vegetation offset requirements could mean planting or other rehabilitation is undertaken on the landholders property;
- Community benefits from increased jobs and economic activity; and
- Environmental benefits from CO2 emission reduction.



Negotiating an agreement

This Section outlines the different types of agreements landholders may enter into with developers, and the commercial considerations which commonly need to be taken into account when negotiating an agreement.

6.1 Obtaining legal and financial advice

Information in this section is only indicative and each wind farm development is different. It is highly recommended that you get independent legal and financial guidance from qualified personal with experience in wind farm developments.

Your developer may agree to reimburse the expenses you incur in obtaining this independent advice.

6.2 Typical contract arrangements

There are a range of different legal agreements which can be used at different stages of wind farm developments. However the most typical arrangements are summarised in Figure 13 below, whereby landholders enter into initial access agreements and/or option to lease agreements during the early stages of development, leading to an eventual lease agreement once the development is approved and construction begins.

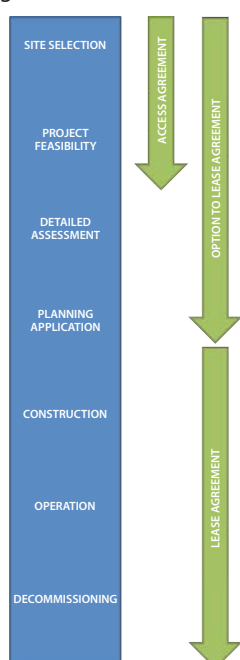


Figure 13 Typical contract arrangements

6.2.1 Access agreements

An access agreement is usually a short term agreement to allow the developer site access to conduct wind monitoring and feasibility studies. This agreement is optional and developers might want to move directly to an option to lease agreement which can provide more certainty (see Section 6.2.2 below).

6.2.2 Option to lease agreements

An option to lease agreement will normally allow a developer to access the property to assess the wind farm feasibility with an option to move into a lease agreement at a later stage. Lease agreements are usually triggered when developers commence construction on the site.

An option to lease agreements is usually binding on the landholder following execution, whereas developers may withdraw at any stage before construction commences (when the lease becomes binding). Landholders should keep in mind that there may be little certainty about when (or if) a wind farm developer will be granted planning approval and begin construction.

Option to lease agreements can be negotiated at any stage of development between site selection and planning application. Agreement can contain as much or as little detail as the landholder and developer wish to agree upon, for inclusion in the final lease. A common approach is for landholders and developers to agree on the key conditions, while leaving some room to finalise minor operational issues as the development progresses. This approach provides landholders with a level of certainty about the final value of the lease, pending the results of feasibility assessments.

Other landholders have chosen to negotiate an option to lease agreement covering all conditions of the eventual lease, thereby removing the need for further negotiation.

The precise wording of the agreement is a matter for negotiation between the landholder and the developer. More commonly the developer prepares the first draft of the agreement, although in some instances landholders have preferred to take responsibility for this drafting (notwithstanding the time and expense this may entail). Once a first draft has been prepared either party can propose further revisions before the agreement is finalised - subject to some legal constraints, the terms of the agreement are a matter for commercial negotiation between landholder and wind farm developer.

Review and expiry of agreements

As noted above in Section 4.3 the terms of the option to lease normally prevent the landholder from negotiating with other wind farm developers until the option to lease period expires. The length of the option to lease period is one of the aspects that can be negotiated between parties.

Changes to proposed location of wind turbines

Developers will often reserve the right to adjust the final position of turbines. This process is commonly referred to as ‘micro-siting’.

Commonly planning approvals allow developers to move turbine locations by up to 100m so long as the environmental impacts do not change.

The extent to which a Landholder has control over micro-siting will depend on the terms of the legal agreements between the Landholder and the developer for development of the wind farm.

6.2.3 Lease agreements

Before construction commences the option to lease will normally be exercised and the wind farm developer will enter into a lease agreement with the landholder. Lease agreements will normally be for the life of the wind farm (generally 25 years with an option for renewal) and will cover the turbine, substation and ancillary building areas. Lease agreements will normally only be entered into once construction has been confirmed.

There is no standard wind farm lease agreement; however a typical lease will confer the following rights and obligations for landholders (Table 1).

Table 1 **Common landholder rights and obligations within lease agreements**

Landholder	
Rights	• To continue farming operations in and around the site once construction is complete (subject to certain restrictions)
	• To sell or sub-let the property (under certain conditions)
	• To review information used to determine remuneration (e.g. electricity generation)
	• To have site security and biosecurity protocols protected
	• To have certain input into project design (e.g. fences and laneways)
	• To have the site rehabilitated following decommissioning
Obligations	• To accommodate the construction and ongoing operation of the wind farm facility (e.g. providing access to property, removing livestock where necessary for construction etc).
	• Not to enter into arrangements with other wind farm developers
	• Not to develop high structures around the wind turbines (to avoid disturbing the air flow)
	• Not to disclose details of the agreement (e.g. payment per turbine).

“Get a good lawyer with experience in commercial contracts, it will be money well spent”

—Comment from wind farm landholder (2012 Focus Group)

6.3 Other types of legal agreements and arrangements

In certain circumstances, other types of agreements and arrangements can be entered into between landholders and developers. These include:

- land purchase;
- easements for support infrastructure;
- crown land development agreements; and
- community wind farm developments.

6.3.1 Land purchase

Occasionally developers may purchase properties required for development. Most commonly this will be where the lot is small and/or the proposed infrastructure takes up most of the lot. Generally, however, developers lease rather than own wind farm sites.

6.3.2 Easements for support infrastructure

Easement agreements may be entered into to allow the passage of cables, transmission lines or access roads through a landholder's property.

Easements may be implemented as part of a lease agreement with host landholders, or as a stand-alone arrangement with neighbouring landholders whose property is required for support infrastructure.

Easements are registered on the Title to the property, with Land and Property Information in NSW, and are automatically transferred when land changes hands.

6.3.3 Crown land development agreements

For a development to proceed on land currently leased from the Crown under either the Crown Lands Act 1989 or the Western Lands Act 1901 the developer will need to obtain:

- the Crown's position in regard to progressing investigation for a Wind Farm; and
- consent to allow the development under cover of the existing lease OR by way of a new Special Purposes Lease from the Crown.

A Special Purposes Lease will not be issued by the Crown unless the developer obtains the written consent of the existing lessee (normally the farmer with the right to graze on that land).

An agreement just between a lessee and a developer to provide consent will not, in legal terms, be a lease and will not authorise the development to be carried out on Crown Land. The agreement could, however, be drafted to address the same types of issues that a lease agreement would normally cover for development occurring on private land.



Figure 14 Sunrise at Waterloo Wind Farm, SA¹⁷

Silverton Wind Farm

The Silverton Wind Farm (stage 1 and 2), located north of Broken Hill, has been approved but not yet constructed. The former Land and Property Management Authority (LPMA) negotiated the legal and operational framework that will allow the proposed wind farm to be established. Agreements were reached by the LPMA both with the wind farm proponent as well as the four current western lands lessees affected by the development.

The consents from the existing pastoral lessees provide the mechanism for a Special Purposes Lease (parallel lease) to be entered into between the LPMA and the developer thus providing the security of tenure the developer requires.

LPMA negotiated an agreement for lease with the wind farm proponents, while the four pastoralists who currently lease western division Crown land in the project area have agreed to the terms of consent deeds that provide their approval for the final special purpose lease to be entered into with the developer.

As part of the process, the pastoral Lessees have also negotiated Operational Agreements with the wind farm developer that set out the details of how both parties will operate and interact in regard to their respective activities on the same area of land.

As a result the proponents will have secure and guaranteed Crown leasehold title to the land and it will occupy the Crown land under a parallel Crown land special purpose lease.

Parallel leases, or two leases on the one parcel of land is permitted following changes to the Western Lands Act and Crown Lands Act in 2011.

In terms of compensation, some leaseholders have utilised legal services to assist them to negotiate.

6.3.4 Community wind farm developments

Community organisations can also undertake their own wind developments, by funding and/or leading projects. These are commonly known as Community Renewable Energy (CRE) projects. There are a variety of different community ownership and participation models for community wind farm developments. Internationally there have been “*hundreds if not thousands*” of CRE projects.¹⁸

There is currently one operational large-scale community wind farm development in Australia, the 4.1MW, two turbine Hepburn Wind Farm at Leonards Hill, Victoria. There are also a number of other community wind farm developments currently under investigation, including in NSW.

The legal arrangements between community wind farm developments and landholders are generally similar to the arrangements landholders have with commercial wind farm developments.

6.4 Group negotiation

Proposed wind farms are usually spread across a number of separately owned parcels of land, requiring developers to deal with multiple landholders. This situation provides an opportunity for landholders to negotiate collectively with the wind farm developer. This type of group negotiation normally occurs with the aim of reaching a collective agreement where the landholders will each host turbines on the same or similar terms.

As with any type of group negotiation there can be advantages and disadvantages with group negotiation that need to be weighed up carefully by each member.

If landholders decide to negotiate as a group, careful management of negotiations is required. From the outset groups should decide the following:

- What will be negotiated - the actual lease agreements or just an overarching agreement on key matters (e.g. revenue) that individual leases will then be separately negotiated under? Even where group negotiation occurs, some things can be left to individual negotiations without compromising the integrity of group negotiations (e.g. access rights).

“Group negotiation can be difficult to manage but we found it was absolutely worthwhile, you just need to set some clear ground rules, manage expectations and keep members informed at all stages.”

—Comment from wind farm landholder (2012 Focus Group)

- Who will negotiate? Will everyone be at the negotiating table or just a group of representatives? If representatives are to negotiate, what authority do they have and how will they consult with the group?
- How binding will the negotiated agreement be? Can Landholders opt out and negotiate separately, or are they obliged to proceed with the negotiated agreement?
- Will the group prepare the first draft of the lease agreement or will this be the developer's responsibility?
- What will happen if the development proposal is changed and the location/number of turbines on the different landholders land parcels is changed?
- Is there a minimum number of turbines that must be developed for the agreement to be binding?
- How will payment be apportioned between properties with different levels of suitability for wind turbines, particularly different wind speeds? Will payment be performance related or will there be a standardised payment regardless of performance?
- What happens when land ownership changes? Does the agreement run with the land? Will additional landholders be allowed to become parties to the agreement once it is finalised with the developer?
- How will costs incurred by the group (not covered by the developer) be apportioned between members of the group?

If you wish to proceed with landholder group negotiations it is highly recommended that you seek expert legal advice.

6.5 Financial considerations and restrictions

6.5.1 Different payment structures

Landholder payments are a key matter for negotiations. Criteria that payments could be based on include:

- number of turbines constructed;
- turbine “name-plate” generation capacity (MW);
- amount of electricity generated by wind farm (MWh);
- windfarm footprint (m²);
- revenue generated (“royalty”) (% of revenue);
- flat fee; or
- a combination of the above (or other) factors.

If remuneration is based on a variable factor (such as MWh generated), the amount you will receive will be subject to project performance. These arrangements can allow landholders to benefit in changed circumstances (e.g. if turbines are upgraded to a higher capacity).

Landholders should ensure they have access to the data that any performance payment calculation is based on, in order to verify payment amounts.

The index that payments are linked to, can also significantly affect the value of leases. Payments may be indexed to economic growth generally, or to particular markets relevant to wind generation (e.g. electricity pricing). The landholder agreement will need to specify the base year that indexed values are calculated from.

Small differences in payment terms can have a significant effect when compounded over the full term of the operational lease.

Timing for payments can also be important. Because the upfront capital costs of development are significant, some developers may prefer to establish contracts which offer landholders higher payments further along the development life cycle (e.g. in the second decade).

Finally, landholder agreements can have tax and financial implications due to the additional income that hosting wind turbines can generate. Host landholders may find it helpful to involve their bank or professional advisor in the negotiation process, to ensure their finances are duly considered.

6.5.2 How much can I expect?

One of the challenges for landholders in negotiating agreements is that it can be difficult to know how much remuneration they can reasonably expect to negotiate. Remuneration varies significantly and depends on a number of factors including:

- the expected performance of turbines (wind speed);
- the location of the site, particularly the distance from major transmission lines;
- competition for the right to place turbines on the site;
- the importance of the particular site to the overall project success; and
- market practice.

“Having a steady, reliable income from our wind turbines has been fantastic for our farm business. We’re now able to make long-term plans to improve our property, knowing that we can survive short-term weather and commodity cycles.”

—Comment from wind farm landholder (2012 Focus Group)

As noted in Section 6.4 financial outcomes may be improved where landholders work together to boost their bargaining position.

Landholders should think carefully before signing any agreement which includes a confidentiality clause, as this may affect their ability to discuss remuneration with neighbours or bargain collectively. NSW Farmers is able to put members in contact with other host landholders to discuss remuneration (see contact details in 11.1).



Figure 15 Clements Gap Wind Farm, SA¹⁹

6.5.3 Impacts on host land value

Few studies in Australia have specifically assessed the potential impact of wind farm development on the value of host land. However a recent Senate inquiry²⁰ concluded that:

The value of properties that are hosts to wind turbines should increase provided of course that the rights to rentals for the turbines are transferable with the sale of the property.

Host landholders may experience an increase in municipal rates, if the value of the turbine development becomes reflected in the value of the land asset. Landholders should contact their local council to discuss potential impacts.

6.5.4 Impact on neighbouring land values

A 2009 study commissioned by the NSW Valuer General²¹ assessed the potential impact of wind farms on nearby land parcels. The study considered the sale results of 45 land parcels adjoining 8 wind farms. The results showed that 40

of the 45 sales investigated did not show any reductions in value, while five properties were found to have lower than expected sale prices (though the study could not confirm that these results were a direct result of the wind farm, and not a response to other factors). The study concluded that “the majority of wind farms erected in Australia appear to have had no quantifiable effect on land values”.

6.5.5 Restrictions on the sale and/or future development of land

Landholders should be aware of how the wind farm development may affect the sale or development of their land in the future.

Sale of land

The wind farm lease agreement will be registered on the title of the landholder, and should a transfer of the property occur through sale the purchaser will be required to agree to the terms of the operational lease agreement.

Planning restrictions

The installation of a wind farm may affect some future development from occurring on the land. These restrictions will depend on the particular local and State development controls that apply to the site. Implications for future development of the land should be taken into account when agreeing to host turbines.

Property subdivision

Landholders who have an intention of subdividing their land in the future, may want to investigate whether the proposed wind farm would not limit subdivision and the potential for locating a dwelling on subdivided lots where appropriate.

Under s23F of the *Conveyancing Act 1919*, a plan for a lease of land for more than 5 years (including any options of renewal) constitutes a subdivision in terms of s4B of the *Environmental Planning and Assessment Act 1979* and s195(1) of the *Conveyancing Act* and will consequently require subdivision consent. Wind farm leases do not normally trigger this requirement as they are treated by NSW Lands and Property Information as being leases for premises rather than land.²² Confirmation should, however, be sought that for a particular wind farm project subdivision consent will not be required. For more information contact the Titling and Registry Services, NSW Lands and Property Information (1300 052 637).

Property Vegetation Plans

Property Vegetation Plans (PVP) are voluntary, legally binding agreements between a landholder and the local Catchment Management Authority (CMA) to enable certain types of clearing. PVPs are commonly applied to the land title and will therefore transfer with any change of ownership. The obligation to comply with PVP offset requirements falls on the landholder.

An existing PVP may need to be varied if additional clearing of native vegetation is required to accommodate the proposed wind farm development. Therefore landholders with an existing PVP, or looking to introduce a PVP, should discuss and negotiate this with their developer.

PVPs are issued under the *Native Vegetation Act 2003* (NV Act). If a wind farm development is not State Significant Development (SSD) (see Section 7.1 for more information on what types of development are SSD) approval under the NV Act may be required for clearing that is required for the installation of the wind farm (including, particularly, the construction of access roads).

Development restrictions

The wind farm lease agreement may contain controls on the types of other development that can occur on the land once the wind farm is installed. Restrictions on agroforestry, PVPs, blasting and extractive mining are the most common. The impact of these restrictions on future development potential will be site dependent.

6.5.6 Land access issues

Host landholders can negotiate and specify in lease agreements the protocol for land access. Some contracts include provisions for stock grids, vehicle wash-down, sign in books, speed limits, marked vehicles, roadside weed control etc.

In addition it is important to ensure that operators have public liability insurance cover for any property damage, e.g. fences, livestock etc. Landholders may seek to have operators cover any increase in farm insurance costs.

6.6 Case Study: Charlie Prell, 'Gundowringa', Crookwell

Charlie Prell is a grazier from Crookwell, near Goulburn NSW, who has more than 10 years experience in having a wind farm established on his property.

Charlie started to consider his property's potential to host turbines after he watched a small 8 turbine wind farm ("Crookwell 1")

being developed on a neighbouring property in 1996.

"I saw wind turbines as an opportunity to drought-proof my property, encourage economic development in the Crookwell region and also reduce carbon emissions".

Charlie started to have discussions with wind farm companies around 2000 and 2001, including a number of wind farm brokers who identify potential sites and establish landholder agreements.

Eventually Charlie signed an agreement to lease in January 2004. By mid-2004 the development application for the "Crookwell 2" wind farm had been submitted and almost a year later the application was approved, with 112 conditions attached including a downgrading of capacity from 55 to 46 turbines.

Crookwell 2 is currently under construction, with 46 turbines planned. "Many landholders don't appreciate the time it can take for a wind farm development to be designed, approved and constructed. A wind farm is a long term development and needs careful consideration by all parties; however it is in landholder's interest to make sure their developer is committed to developing the asset and is making progress towards construction. This can be achieved by building in milestone dates into agreements".

"A wind farm is a long-term development and needs careful consideration by all parties; however it is in the landholder's interest to make sure their developer is seriously committed to constructing the wind farm and is making progress towards this construction. This can be achieved by building milestone dates into agreements."

Charlie encourages potential host landholders to talk with other host landholders and visit existing wind farms to share experiences and to see and experience wind farms first hand.

Charlie also believes it is important for landholders to be open and honest with their neighbours about their plans, listen to their concerns and be accommodating where possible.

"Nine turbines were removed from our plan, as a compromise to neighbours' concerns."

Charlie is looking forward to having a secure passive income source which will help relieve production pressure on his farm, and therefore allow him to take better care of his land, a better outcome for all.

Charlie's advice for potential host landholders:

- *engage a lawyer with experience in corporate contracts*
- *visit a wind farm*
- *have milestone dates inserted into your contract to ensure your developer is moving towards construction*
- *don't rush into signing a contract you are not completely happy with. Being approached means that you own an asset that is significant and real.*



Planning and Development

7

This Section outlines the activities in the planning and development phase of the wind farm. These activities include the following:

- design and layout of the wind farm;
- completion of an Environmental Impact Statement (EIS);
- completion of the planning approvals process;
- grid connection (including transmission line);
- planning approvals; and
- community and stakeholder consultation.

Managing landholder and local resident's expectations in term of timing is critical as wind farm developments can have long lead-in times (for example the Capital Wind Farm took over seven years from initial assessments to operation).

7.1 The NSW Wind Farm Planning Process

The planning requirements for wind farms in NSW are contained in the Environmental Planning and Assessment Act 1979 (*EP&A Act*).

7.1.1 Key steps in the planning process

Wind farms involving capital investment of more than \$30 million or more, or \$10 million in an environmentally sensitive area are classified as State Significant Developments (SSD) under the EP&A Act. The majority of commercial wind farm development in NSW is expected to meet these criteria and this Guide is therefore focussed on projects that are SSD.

If a project is not classified as SSD under the EP&A Act, different legislation, regulations may also apply that are not covered in this Guide. If a proposed development is on Crown Leasehold land the Crown's consent, as land owner, is required when lodging a development application.

The basic approvals process for SSD wind farm development is outlined in Table 2 below.

Table 2 Key steps in the planning process for SSD (as at December 2012)

Step	Explanation
Development Application (DA)	The developer will submit a DA with the NSW Department of Planning and Infrastructure (DP&I).
Director General Requirements (DGRs) released	The Director General will issue specific requirements which must be addressed in the Environmental Impact Statement (EIS).
Environmental Impact Statement	The developer will complete necessary environmental monitoring and assessments, and submit the EIS and completed DA with DP&I.
Consultation	DP&I will exhibit the DA with EIS for at least 60 days and notify local council(s) and landowners. DP&I also assesses the EIS with other agencies.
Decision	DP&I will make recommendations to the Planning Assessment Commission (PAC). The PAC will then consider the recommendations and may hold a community.
Appeal rights	Parties have 12 months to appeal consent decisions.

7.1.2 Key issues to be addressed in the DA and EIS

Wind developers will need to prepare a number of technical studies as part of their DA and EIS. These studies can be useful to landholders in understanding the impacts of the wind farm development on their land. The technical studies required will commonly include:

- assessment of visual impacts (including visual amenity and shadow flicker);
- report on community consultation;
- assessment of traffic and transportation impacts;
- assessment of impacts on flora and fauna;
- assessment of impacts on Cultural heritage;
- assessment of any noise impacts; and
- a decommissioning plan.

While the developer will lead the EIS development, host landholders may be asked to assist by providing information about the site etc.

7.1.3 Draft Planning Guidelines

The NSW Government has developed the *Draft NSW Planning Guidelines: Wind Farms* which are intended to act as a framework document for applying the requirements of the EP&A Act to wind farm development. The Draft Planning Guidelines outline processes for community consultation during wind farm development and provide guidance on measuring and assessing environmental impacts. At the time of this Guide's publication the Draft Planning Guidelines were being reviewed by the NSW Department of Planning and Infrastructure following a public consultation process.

A copy of the Draft Planning Guidelines is available at: <http://www.planning.nsw.gov.au/Development/Onexhibition/tabid/205/ctl/View/mid/1081/ID/66/language/en-AU/Default.aspx>.

7.2 Engaging with local stakeholders

Local stakeholders in the community have a strong and legitimate interest in the planning and assessment process for wind farms in their area.

Community consultation is a critical process requiring wind developers to demonstrate an ongoing commitment to provide information and ensure opportunities for input. Effective community consultation helps ensure:

- the community genuinely understands the proposal and its potential impacts (positive and negative);
- the proponent genuinely understands community concerns, and these concerns are comprehensively and transparently addressed in the design and development of the wind farm proposal.

Host landholders can help with the process of engaging local stakeholders by:

- explaining the proposal to the community;
- advising developers about how best to engage with the community;
- advising developers about how community concerns could be addressed (e.g. through specific design changes).

It is recommended that landholders and landholders agree early on the extent to which landholders will be expected to contribute to this process.

The Clean Energy Council's *Best Practice Community Engagement Guidelines*, is a useful resource for effective engagement.

7.2.1 Making sure your developer is engaging effectively

While there are a number of different approaches to consulting with the local community and no "one-size-fits-all" answer, it is in host landholders' interests to make sure the developer is engaging effectively with the community. Host landholders can help developers with community engagement by advising developers on the most effective ways to engage with the community (e.g. information days, site visits, one-on-one meetings, community sponsorship opportunities) and also, if appropriate, participating in consultation exercises.

7.2.2 Participating in CCCs

Community Consultative Committees (CCC) provide a forum for open discussions between the wind farm developer, the community, the Council and other stakeholders on environmental and operational issues relating to the wind farm. Common in the minerals sector, CCC's are increasingly being used in the wind industry as a community engagement tool (and are included in the Draft Guidelines as a proposed planning requirement). Host landholders may wish to encourage their developer to voluntarily establish a CCC in order to provide an avenue for community concerns to be heard. Host landholders may also want to participate personally on the CCC.

7.2.3 When and how to inform your neighbours

Landholders can choose to be pro-active and inform neighbours or wait for neighbours to receive official notification from developers. At a minimum, neighbours and the community should be informed about the project once the developer feels that the wind farm has prospects of progressing.

It is recommended to have a coordinated approach with the developer to make sure the right information is provided at the right time.

7.2.4 Identifying common issues and concerns

Many landholders have found that the best approach to community consultation is to openly engage with neighbours before negotiations with developers begin, to identify issues and concerns. This approach often finds that landholders and residents have very similar issues and concerns, regardless of whether they are potential hosts or not. If these common concerns can be documented early and adequately addressed before and during developer negotiations, there is a reduced chance of community divisions arising.

“My advice would be to always be upfront with your neighbours and maintain personal contact. Inform them of your plans early and let them know when plans change. If disagreements arise you can still maintain civil even friendly relationships.”

—Comment from wind farm landholder (2012 Focus Group)

7.2.5 Making economic contributions to the community

In certain cases developers may choose to make additional economic contributions to the community, either as a means of compensating for potential impacts or simply as a goodwill gesture. In some cases host landholders have made provisions in their contracts for a proportion of funding to be allocated to community benefits (possibly via a trust fund). Decisions about how the funding is distributed could rest with:

- the host landholders;
- the local Council; or
- a community representative committee.

7.2.6 How to deal with other host landholders

Wind farm developments will usually involve more than one landholder. While land agreement negotiations are conducted separately, a healthy relationship between adjoining host landholders can be very beneficial in negotiating with developers on operational issues and dealing with community concern. See Section 6.4 for more information on group negotiations.

7.2.7 How to deal with objections and complaints

Objections and complaints can occur during development, during construction and operation. Landholders should make clear arrangements with developers about who is responsible for fielding objections and complaints and the course of action.



The construction phase can have a number of potential impacts for host landholders relating to road construction, turbine access, stock management, noise, dust and traffic. Effective management of these impacts is a focus of the planning approval process, and developers are generally willing to work with landholders to mitigate or minimise impacts.

8.1 Construction of access roads



Figure 16 Construction of Woodlawn Wind Farm, Bungendore, NSW²³

Construction of access roads for wind farm access may generate noise, dust and cause interference with watercourses and vegetation. Water management needs to be considered, and roads designed to avoid slips, minimise the removal of vegetation and avoid scars on the landscape. Dust from access construction processes can be addressed by seeding temporarily or occasionally watering stockpiled soil material.



Figure 17 Road construction, Woodlawn Wind Farm, Bungendore, NSW²⁴

8.2 Access considerations

The wind farm developer will require a significant level of access to the site during construction. Access required will include for:

- vehicles for delivery of components, foundation construction and laying of underground cables;
- cranes for erection of the towers and turbine and blade installation; and
- cranes for commissioning checks, maintenance and repair.

These access requirements can not only result in increased vehicle movements in the local area, but can also have impacts on stock management and biosecurity protection if not appropriately managed. Clear guidelines between the landholder and wind farm developer can usually minimise these impacts without adversely affecting the wind farm construction process.

“Construction can be a major interruption to your property, so you should make sure your contract specifies what is acceptable and unacceptable”.

—Comment from wind farm landholder (2012 Focus Group)

8.3 Turbine Construction

Turbines are constructed by first building an underground solid concrete base. The extracted material can be used in road building. Towers are typically transported to the site in sections and constructed using cranes.



Figure 18 Turbine Base Construction, Woodlawn Wind Farm, Bungendore, NSW²⁵

8.4 Stock Management

During construction livestock will need to be kept away from excavations for cabling and tower foundations. The impact of this on farm management (and, particularly, available grazing land) may need to be managed with the wind farm developer. As noted above, increased levels of site access may require changes in stock management processes but may also present an opportunity to develop new stock laneway systems.

8.5 Ecological and environmental considerations

The project planning approval may require construction to be timed to avoid migration and nesting periods for birds in the area, and to minimise erosion of exposed surfaces by rain or wind. To facilitate revegetation post-construction temporary fencing and/or the planting of native grasses and/or shrub species may be required.



Figure 19 Turbine Base Construction, Woodlawn Wind Farm, Bungendore, NSW²⁶

8.6 Safety and traffic

As a construction site, members of the public will typically be excluded during construction. Temporary fencing and signage may be used for this purpose.

8.7 Construction noise

Similar to all construction sites, building a wind farm will generate noise associated with large vehicle movement, excavation and construction of foundations (e.g. blasting in some cases) and structures such as switchyards. Being associated with construction, these noise impacts will be temporary only and will normally be subject to prescribed controls in the development approval.



Figure 20 Turbine Construction, Woodlawn Wind Farm, Bungendore, NSW

8.8 Temporary buildings and parking

During wind farm construction some temporary on-site workers' and storage facilities such as site offices, portable toilets, storage areas and vehicle parking may be required. The impact of these structures will normally be minimal as a result of their temporary placement.



“You get used to having maintenance staff and contractors coming and going from your property. The new roads have made my farm much more manageable for livestock movement and in the event of a fire.”

—Comment from wind farm landholder (2012 Focus Group)

Wind farms are operated according to a planned maintenance schedule. Landholders can ensure they have input into the operation of the wind farm, through ongoing engagement with the wind farm operator and other host and non-host landholders (including, potentially, through the CCC if established).



Figure 21 Access road to turbine²⁸

9.1 Wind Farm Regulation

Local councils are currently the Appropriate Regulatory Authority (ARA) for regulation of all wind farms under the *Protection of the Environment Operations Act 1997* (POEO Act). Wind farm noise is a complex issue and wind turbines have unique noise generating characteristics including a noise output that varies with wind speed and their location.

In many cases, local councils have reported that they do not have the necessary resources or expertise to effectively regulate noise from large-scale wind farms. The NSW Government has decided that large-scale wind farms should be regulated by the Environmental Protection Authority (EPA) under an Environment Protection Licence. This is because the EPA is better placed to deal with complex noise issues, has the necessary expertise and has a robust regulatory framework for licensing activities.

The EPA is progressing the necessary regulatory amendments to put this into place. For the latest information on this see <http://www.environment.nsw.gov.au/licensing/windfarms.htm>.

9.2 Maintenance and monitoring

Wind farms can be operated from either on site premises or from a remote off site location. Maintenance operations, however, will require access onsite to the turbines. Strict health and safety requirements apply to personnel undertaking tower and turbine maintenance operation. Most scheduled maintenance can be undertaken using internal tower access, but major repairs may require crane access to the site.

9.3 Management of tourist traffic

Landholders sometimes experience an increase in tourist traffic once wind farms are built. Access roads may require clear signage to deter unauthorised vehicles from entering the property. In some cases local councils have assisted by establishing lookouts where tourists can view the turbines.





Figure 22 Sunset at Waterloo Wind Farm, SA²⁹

Landholders should understand their rights with regards to removal of infrastructure and land rehabilitation before agreeing to host wind turbines on their property. When a wind farm is decommissioned, all above-ground elements are removed and the site is restored to its original condition. Generally, however, underground cabling may be left in the ground, and roads left as is. The decommissioning process usually takes around six months.

10.1 Wind farm lifespan

The technical design life of a wind turbine is currently 20 to 30 years. This represents the period of time where it is more cost effective to service a turbine rather than replacing it. The turbine gearboxes will typically require an oil change every three years while bearings may need to be replaced after a ten year period.

Many wind farms in NSW have not reached their technical lifespan however in Europe some farms have been reconditioned following the 'completion' of the design life.

10.2 Developers right for early lease termination

Certain lease agreements allow developers to terminate an operational lease early if they wish to decommission the towers.

10.3 Developer rights and obligations during decommissioning

In most cases the proponent/wind farm owner rather than the host landholder is responsible for decommissioning. The planning approval process normally requires a Decommissioning and Rehabilitation Plan (DRP) to be prepared. Typically DRPs address the management of:

- turbines and the associated concrete slab (including removal of inactive turbines);
- any associated structures including public viewing facilities;
- site transmission cabling and control room;
- electricity substation, switchyard, overhead transmission lines connected to the grid;
- access roads (according to the wishes of the landholder);
- disposal arrangements for non-recyclable components;
- revegetation; and
- community impacts.

A decommissioning bond may be required if the DRP is deemed to be inadequate.

It is important for landholders to understand their rights and responsibilities during the decommissioning phase.



Where to go for more advice

11

11.1 NSW Farmers

NSW Farmers is Australia's largest state farming organisation representing farmers, rural and regional communities.

We work closely with kindred organisations and stakeholders to secure a sustainable agricultural future for our members, the communities in which they live and for all Australians.

We are not a government organisation. Instead, we represent the grassroots views and aspirations of our farmer members in Macquarie Street and Canberra.

NSW Farmers' strategic objective is to advocate for public policies that are financially viable, innovative, environmentally and socially responsible and attuned to community expectations.

Host landholders can contact the associations member service centre on 1300 794 000.



11.2 Renewable Energy Precinct Coordinators

An important contact for host landholders is their local NSW Renewable Energy Precinct Coordinators (Table 3). These regionally based coordinators are employed by the NSW Office of Environment and Heritage, to help drive regional initiatives and lead stakeholder engagement to enhance knowledge, understanding and uptake of renewable energy.

For more information on the program visit <http://www.environment.nsw.gov.au/climatechange/renewableprecincts.htm>.

Table 3 NSW Renewable Energy Precinct Coordinators

Role	Operation
New England North West Coordinator	paul.cruickshank@environment.nsw.gov.au 0457 593 827
Upper Hunter Coordinator	pauline.dunne@environment.nsw.gov.au 0457 593 991
Central West Coordinator	grant.christopherson@environment.nsw.gov.au 0457 594 193
NSW/ACT Coordinator (East)	chris.mackenziedavey@environment.nsw.gov.au 0457 593 266
NSW/ACT Coordinator (West)	dieuwer.reynders@environment.nsw.gov.au 0437 574 703
Snowy-Monaro and South Coast Coordinator	mark.fleming@environment.nsw.gov.au 0432 064 727

11.3 Other key resources

There are a range of other sources of advice within government and industry, which can assist landholders in different aspects of wind farm development. Table 4 below lists some key organisations

Table 4 Key organisations

Organisation	Role	Contact
NSW Office of Environment and Heritage	Provides information on renewable energy in NSW.	131 555 http://www.environment.nsw.gov.au/
Department of Planning and Infrastructure	Manages the planning and approvals process for wind farms	02 9228 6111 http://www.planning.nsw.gov.au/
NSW Department of Trade and Investment	Supports, regulates and monitors the NSW energy industry.	1300 136 888 http://www.trade.nsw.gov.au/energy/sustainable/renewable/wind
Clean Energy Council	Peak body representing Australia's clean energy sector, including wind farm developers. Provides information and services to improve understanding about wind energy.	03 9929 4100 http://www.cleanenergycouncil.org.au/
NSW Office of Fair Trading	Manages complaints about business practices.	13 32 20 http://www.fairtrading.nsw.gov.au/default.html
Law Society	Provides information on legal professionals including those with particular experience in advising landholders.	02 9926 0333 http://www.lawsociety.com.au/
Department of Primary Industries Rural Support Program	Works in collaboration with existing NSW Government programs and community based service providers and agencies to build the capacity and resilience of rural communities.	Cheryl Pope (Orange) 02 6391 3948 cheryl.pope@dpi.nsw.gov.au Dick Kearins (Goulburn) 02 4828 6614 dick.kearins@dpi.nsw.gov.au Di Pritchard (Albury) 02 6051 7703 di.pritchard@dpi.nsw.gov.au Jennifer Haberecht (Grafton) 02 6640 1600 jen.haberecht@industry.nsw.gov.au

There are also a range of online resources which can assist host landholders (see Table 5 below).

Table 5 Key documents

Documents	Issues	Contact/Link
<i>Wind Energy Atlas</i> Sustainable Energy Development Authority	<ul style="list-style-type: none"> • Site suitability 	http://www.trade.nsw.gov.au/energy/sustainable/renewable/wind/sustain_renew_wind_atlas_poster.pdf
<i>Draft NSW Planning Guidelines Wind Farms</i> NSW Planning and Infrastructure	<ul style="list-style-type: none"> • Planning requirements • Consultation requirements 	http://www.planning.nsw.gov.au/LinkClick.aspx?fileticket=5yeY6yw_wRE%3D&tabid=205&mid=1081&language=en-AU
<i>Community Attitudes to Wind Farms in NSW</i> Office on Environment and Heritage	<ul style="list-style-type: none"> • Community attitudes 	http://www.environment.nsw.gov.au/resources/climatechange/10947WindFarms_Final.pdf
<i>Wind turbine & low frequency noise fact sheets</i> Clean Energy Council	<ul style="list-style-type: none"> • Noise impacts 	http://www.cleanenergycouncil.org.au/cec/technologies/wind/turbinefactsheets
<i>Public Statement: Wind Turbines and Health</i> National Health and Medical Research Council	<ul style="list-style-type: none"> • Health impacts 	http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/new0048_public_statement_wind_turbines_and_health.pdf
<i>Wind farm Policy</i> Aerial Agricultural Association of Australia	<ul style="list-style-type: none"> • Aerial agriculture 	http://www.aerialag.com.au/Portals/0/Users/005/05/5/AAAA%20Windfarm%20Policy.pdf
<i>The Rural Landholders' Guide to Environmental Law in NSW</i> Environmental Defenders Office	<ul style="list-style-type: none"> • Environmental law 	http://www.edo.org.au/edonsw/site/pdf/pubs/rural_landholders_3rd_ed.pdf
<i>DRAFT NSW Renewable Energy Action Plan</i> NSW Government	<ul style="list-style-type: none"> • Renewable energy policy 	http://haveyoursay.nsw.gov.au/document/show/475

Cover image: GHD Pty Ltd

Chapter images 1, 2, 3, 4, 5, 6: GHD Pty Ltd

Chapter images 7, 11: NSW Office of Environment and Heritage

Chapter image 8: Infigen Energy Pty Ltd

Chapter images 9, 10, 11: Clean Energy Council

¹Mr D Clarke

²NSW Office of Environment and Heritage (2010) NSW Small Wind Turbine Consumer Guide, <<http://www.environment.nsw.gov.au/resources/climatechange/0449SWCG.pdf>>.

³NSW Office of Environment and Heritage

⁴NSW Department of Planning & Infrastructure

⁵NSW Office of Environment and Heritage

⁶State Environmental Planning Policy (Infrastructure) 2007, 39 (1A).

⁷NSW Office of Environment and Heritage

⁸Mr D Clarke

⁹Infigen Energy Pty Ltd

¹⁰Infigen Energy Pty Ltd

¹¹Clean Energy Council

¹²Clean Energy Council

¹³Garrad Hassan Pacific Pty Ltd (2009). Shadow flicker assessment for the Stockyard Hill Wind Farm, Victoria.

¹⁴See endnote 15 above.

¹⁵NSW Department of Planning & Infrastructure (2011), NSW Planning Guidelines: Wind Farms, <<http://www.planning.nsw.gov.au/Development/Onexhibition/tabid/205/ctl/View/mid/1081/ID/66/language/en-AU/Default.aspx>>.

¹⁶CSIRO (2012). Acceptance of rural wind farms in Australia: a snapshot. <<http://www.csiro.au/en/Organisation-Structure/Flagships/Energy-Transformed-Flagship/Exploring-community-acceptance-of-rural-wind-farms-in-Australia.aspx>>. ¹⁷Mr D Clarke

¹⁸Hicks J and Ison N (2011) Community-owned renewable energy (CRE): Opportunities for rural Australia, Rural Society 20:244-255, at 244. ¹⁹Clean Energy Council

²⁰Inquiry into the Social and Economic Impacts of Rural Wind Farms (2011) Interim Report, Commonwealth of Australia 2011

²¹NSW Department of Lands, DuPonts in association with PRP Valuers and Consultants (2009). Preliminary Assessment of the Impact of Wind Farms on Surrounding Land Values in Australia; Prepared for NSW Valuer General. <http://www.lpma.nsw.gov.au/__data/assets/pdf_file/0018/117621/t0L51WT8.pdf>.

²²NSW Land and Property Information, Windfarms, <http://rgdirections.lpi.nsw.gov.au/deposited_plans/lease_plans/lease_of_premises/windfarms>.

²³Infigen Energy Pty Ltd

²⁴Infigen Energy Pty Ltd

²⁵Infigen Energy Pty Ltd

²⁶Infigen Energy Pty Ltd

²⁷Infigen Energy Pty Ltd

²⁸Clean Energy Council

²⁹Mr D Clarke



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