Explanatory outline

Section 8c outlines assessment criteria for wind energy systems.

8c Wind energy systems

8c.1 Application of this section

This section applies to development described in Column 1 when carried out on land described in Column 2.

Column 1: Type of development	Column 2: Applicable land

• electricity generating works that generate electricity from wind energy , including:
  • small wind turbines; and
  • small wind turbine systems.
	Any land where electricity generating works are permissible with consent, either through *Upper Hunter LEP 2013* or through *SEPP (Transport and Infrastructure) 2021.*

• Modifications to existing consents previously approved by Council for any electricity generating works that generate electricity from wind energy	Any land

This section **does not apply** to small wind turbines that are exempt development, or complying development for which a complying development certificate is sought under *State Environmental Planning Policy (Transport and Infrastructure) 2021*.

Note. Depending on the scale of the proposal or the sensitivity of the site, development to which this section applies may be designated development, integrated development or State significant infrastructure. Each of these development categories have detailed procedural and assessment requirements that are beyond the scope of this DCP. It is suggested that proponents seek expert advice. See the NSW Government's Wind Energy Framework at https://www.planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy/Wind-Energy-Framework

8c.2 Relevant planning instruments & legislation

The following environmental planning instruments or other legislation are relevant to development to which this section applies:

- *Upper Hunter Local Environmental Plan 2013*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021,* particularly *Division 4 Electricity generating works or solar energy systems*

Further planning instruments and legislation may also be relevant. In the event of any inconsistency, the above listed instruments will prevail over requirements or criteria contained in this section.

The key guideline document for wind energy systems in NSW is *Wind Energy Guideline for State significant wind energy development - December 2016* (NSW Department of Planning and Environment 2016). Although it relates to State Significant Development wind energy systems, its principles and requirements are referenced in this part.

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8c.3 Definitions

There may be words used in this Part that are defined in the *Environmental Planning and Assessment Act, 1979*, as amended, or within *Upper Hunter Local Environmental Plan 2013*, as amended, or within *State Environmental Planning Policy (Transport and Infrastructure) 2021.* The Dictionary to this DCP provides additional definitions that are relevant to this Part.

8c.4 Objectives

The objectives of this section are that wind energy systems:

1. do not interfere with the health and amenity of the community within the proposed locality
2. have a consistent approach in their design and the positioning of wind turbines
3. adequately consider environmental issues prior, during and in the operation phase
4. achieve a built form that does not interfere with the surrounding context
5. do not have an adverse impact on Council's infrastructure
6. are afforded an adequate level of public consultation during the development assessment stage.

8c.5 Supporting plans & documentation

Development applications that are subject to this section should be supported by the following plans and documentation.

Item	When required	Plans or information to be provided
A. General requirements	All applications	Refer to Part **2 Preparing & lodging a development application**.
B. Site & context plan	All applications	The following details are to be shown on site plans: • location of proposed wind turbine envelopes • site and property boundaries • land contours • native and existing vegetation • land uses within and adjoining the proposal area • the location and uses of all buildings on the site • power and transmission lines, sub-stations(s) • fences • temporary structures including accommodation • extent of ground disturbance • route of any proposed transmission lines.
C. Wind turbine details		The following details are to be given: • mast and hub heights • blade widths • generating capacity • life span

Item	When required	Plans or information to be provided
		• colour • manufacturer's operating specifications
D. Sustainability assessment	A development with a development footprint of 1,500 square metres or greater	Report, prepared by a suitably qualified professional, addressing the requirements of section **1h Sustainability**
E. Servicing strategy	For electricity and telecommunications requirements – all applications. For water or sewerage management - where the development involves associated buildings requiring associated infrastructure	Provide evidence of satisfactory arrangements for the provision of the following services to the development: • reticulated water or on-site water supply • reticulated sewerage or on-site waste water management • electricity • telecommunications Please discuss site-specific requirements with council officers.
F. Vegetation (including trees) reports	Applications affecting vegetation (including trees), as specified in section **11a Vegetation (including trees)**.	Applicable reports or plans, prepared by a suitably qualified person, as specified in section **11a Vegetation (including trees)**. These must be consistent with other elements of the development application, including Site plans, Bushfire assessment report and Landscaping plans. Depending on the site circumstances, these may include: • written description and plans • arborist's report • ecological report • heritage report safety or biosecurity risk report
G. Biodiversity and native vegetation reports, plans or assessments	Applications for which biodiversity and/or native vegetation reports, plans or assessments are required (refer to section **11b Biodiversity conservation)** These will be required for development on land with high biodiversity values, or proposals that require significant disturbance to, or clearing of, native vegetation or potential habitat for native species.	Applicable reports, plans or assessments, prepared by a suitably qualified person, as specified in section **11b Biodiversity conservation**. These may include: • Native vegetation clearing threshold report, and/or • Biodiversity (flora & fauna) assessment report, and/or • Biodiversity development assessment report (BDAR), and/or • Biodiversity management plan, and/or Biodiversity offset information, strategy or plan

Item	When required	Plans or information to be provided
H. Landscape plan & report	All applications	Plan and report, prepared by a suitably qualified professional, showing: • description of ground preparation and on-going maintenance of landscaping • areas of private open space, proposed turf and areas of established gardens. • location and species of trees and shrubs to be retained or removed. • schedule of plantings, cross-referenced to the site plan indicating species, massing and mature height. • details of restoration and treatment of earth cuts, fills, mounds, retaining walls, fencing and screen walls. This plan must be consistent with any other plans required for **vegetation (including trees)** or **Biodiversity and native vegetation** as above.
I. Soil & water management plans or reports	Applications for which soil and water management plans or reports are required (refer to section **11f Soil & water management**)	Prepare applicable soil and water management plans or reports, as specified in section **11f Soil & water management**. These could include: • cut and fill details. • erosion and sediment control plan (ESCP) • erosion and sediment control strategy (ESCS) • soil and water management plan (SWMP) • comprehensive water cycle strategy (CWCS).
J. Geotechnical hazard & salinity assessment	All applications	Include the matters required under section **10c Geotechnical hazard.**
K. Bushfire assessment	All applications	The assessment, prepared by a suitably qualified bushfire consultant should include: • potential for the wind farm to trigger or influence a bushfire. • potential for bushfire damage and proposed bushfire management strategies • provision of fire retardant devices within the nacelle. • matters required under section **10b Bushfire risk**.
L. Site waste minimisation & management plan	All applications	A Plan and report addressing the requirements outlined in part **11h Waste minimisation & management.**
M. Traffic & road management impact report	All applications	The assessment, prepared by a suitably qualified and experienced consultant should include: • proposed haulage routes • new roads required

Item	When required	Plans or information to be provided
		• proposed upgrading of local roads whether private or Council owned • existing road and bridge weight limits • strategies to overcome deficiencies in the road network. • matters required under section **12a Access & vehicle parking**.
N. Acoustic assessment report	All applications	The report must be prepared by a suitably qualified and experienced consultant and should include a comprehensive noise impact survey and modelling of the proposed development (worst case scenario) in relation to the existing environmental surroundings. Noise modelling shall as a minimum include all residential dwellings and other likely noise receptors within in a 3 km radius of a proposed wind turbine. Refer to *Wind Energy: Noise Assessment Bulletin For State significant wind energy development ,December 2016 (NSW Government, Department of Planning and Environment)* available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-noise-assessment-bulletin-2016-12.pdf
O. Noise agreements	All applications	Copies of all agreed and proposed noise agreements that have been entered into or are intended to be entered into. See *Noise Assessment Bulletin* above.
P. Aviation impact report		The assessment must be prepared by a suitably qualified and experienced consultant and should include an assessment of likely impacts on Scone Regional Airport, and any other airstrips, helipads and aviation facilities in operation in the locality. Include the matters required under section **13d Scone Regional Airport**
Q. Communications infrastructure impact report		The assessment must be prepared by a suitably qualified and experienced consultant and should include an assessment of the likely impacts on the local, regional and state communications networks (television, radio, mobile phones and two way radios) in operation within the locality, including the establishment of benchmarks on quality and service.
R. Visual impact assessment	Where wind turbines are proposed to be placed on ridgelines or part of the wind turbine structures will be visible above a ridgeline	The assessment must be prepared by a suitably qualified and experienced consultant and should include, but is not limited to: • computer assisted modelling to a minimum distance of 10 km from the affected ridgelines. • photomontages, which should also depict night lighting in accordance with any requirements of the Civil Aviation Safety Authority (CASA)

Item	When required	Plans or information to be provided
		Refer to *Wind Energy: Visual Assessment Bulletin For* available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-visual-assessment-bulletin-2016-12.pdf
S. Heritage impact assessment	All applications	ıe assessment must be prepared by a suitably qualified and experienced consultant and should include an assessment of the heritage significance of the subject site, nearby sites and surrounds including but not limited to indigenous and non-indigenous cultural, archaeological and built environment issues/items. Include the matters required under **section 9a Heritage conservation**.

8c.6 Other information

Public notification

Requirements for public notification of wind energy systems are outlined in Council's *Community Participation Plan*. Applicants are encouraged to actively consult with non-hosting adjoining owners during the design process.

Developer contributions

The following may be applicable to the proposal:

- *Upper Hunter Shire Council Section 94 Contributions Plan 2017.*
- *Upper Hunter Shire Council Section 94A Contributions Plan*

Depending upon the likely demand for public services or facilities that a development proposal is likely to generate, Council may also require preparation of a specific Contributions Plan or may enter into a Voluntary Planning Agreement with the developer prior to determining a particular development proposal.

Consultation

Applicants are advised to consult first with public authorities that may have a role in the assessment of a development application to ensure the application appropriately addresses all relevant and necessary considerations. Council may consult the following agencies in connection with the development application:

- NSW Department of Planning and Environment
- NSW Department of Primary Industries
- Department of Regional NSW.
- Transport for NSW
- Civil Aviation Safety Authority (CASA)
- Australian Rail Track Corporation
- NSW Rural Fire Service
- Department of Defence

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8c.7 Assessment criteria

A performance-based approach will be adopted in the assessment of development applications. Applications will be assessed according to the extent to which the outcomes specified in the left-hand column of the following table will be satisfied or achieved by the design, construction or operation of the proposal.

The design guidelines specified in the right-hand column indicate design and best practice solutions by which the required outcomes can be met. They do not preclude other solutions that may be suitable under particular local circumstances. All proposals will be considered on merit.

This section is structured in the following way:

A	General design, construction & operation
B	Surrounding environment
C	Cumulative impact
D	Distances from dwellings & surrounding development
E	Distances from public roads & boundaries
F	Visual impact
G	Acoustic impact
H	Biodiversity
I	Vegetation (including trees)
J	Water quality
K	Bush fire hazard
L	Impacts on communications networks
M	Impacts on aviation facilities
N	Tourism
O	Environmental management
P	Decommissioning

Outcomes to be achieved	Design guidelines

A. General design, construction & operation

- The proposal shall meet the requirements of the following guidelines and documents (as amended or updated):
  - *Wind Energy Guideline for State significant wind energy development - December 2016* (NSW Department of Planning and Environment 2016)
  - Best Practice Guidelines for implementation of Wind Energy Projects in Australia (Auswind, 2006).
  - Draft National Wind Farm Development Guidelines (The Environment Protection and Heritage Council July 2010).

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Outcomes to be achieved	Design guidelines
The proposals demonstrates knowledge, awareness and reference to the publications (as amended) as listed in section **8c.8 Supplementary guidance**.	
B. Surrounding environment ■ The proposal takes into account the surrounding environment. All elements of the proposal are sited and carried out to minimise impacts on the locality, and do not conflict with adjoining or nearby development.	
C. Cumulative impact ■ The cumulative impact of the proposal in connection to existing or approved undeveloped wind power generation has been considered.	• Ridgelines dominated with wind turbines will not be favoured.
D. Distances from dwellings & surrounding development ■ Distances between proposed wind turbine locations in relation to any dwellings shall give due consideration to the issues of excessive noise, shadow flicker, infrasound and visual amenity.	• The requirements of *Wind Energy Guideline for State significant wind energy development - December 2016* (NSW Department of Planning and Environment 2016) (or the appropriate updated document) should be met with regard to distances to neighbouring dwellings and properties.
E. Distances from public roads & boundaries ■ The proposal is not located within a distance equivalent to 2 times the height of the turbine (including the tip of the blade) from the boundary of a formed public road or a non-host property boundary.	
F. Visual impact ■ The visual impact of the proposal on surrounding development and on the locality is minimised ■ All transmission lines associated with the development are to be placed underground	• The requirements of *Wind Energy Guideline for State significant wind energy development - December 2016* (NSW Department of Planning and Environment 2016) (or the appropriate updated document) should be met with regard to visual impact to neighbouring dwellings and properties. • Refer to Refer to *Wind Energy: Visual Assessment Bulletin For State significant wind energy development, December 2016 (NSW Government, Department of Planning and Environment)* available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-visual-assessment-bulletin-2016-12.pdf/media/Files/DPE/Bulletins-and-

Outcomes to be achieved	Design guidelines
	Community-Updates/wind-energy-visual-assessment-bulletin-2016-12.pdf
G. Acoustic impact ■ The acoustic impact of the proposal on surrounding development and on the locality is minimised	• The requirements of *Wind Energy: Noise Assessment Bulletin for State significant wind energy development - December 2016* (NSW Department of Planning and Environment 2016) (or the appropriate updated document) should be met • Refer also to 'General' references listed in the 'Supplementary Information section below.
H. Biodiversity ■ The proposal avoids and minimises impacts on biodiversity ■ The development meets the provisions of part **11b Biodiversity conservation.**	• In avoiding impacts on biodiversity, refer to the *Biodiversity Conservation Act 2016* and regulatory requirements under that Act, as discussed in part **11b Biodiversity conservation**.
I. Vegetation (including trees) ■ The proposal maximises the retention of vegetation, including trees. ■ The development meets the provisions of part **11a Vegetation (including trees).**	
J. Water quality ■ The development considers the provisions of section **11f Soil & water management** and the provisions of *UHSC Engineering Guidelines for Subdivisions and Developments,* as amended.	
K. Bush fire hazard ■ The development considers the provisions of section **10b Bushfire risk**.	
L. Impacts on communications networks ■ Impacts on communications networks (internet, television, radio, mobile phones and two way radios) are minimised. Any reduction in either quality or service has been suitably addressed to overcome the loss.	
M. Impacts on aviation facilities ■ Likely impacts on aviation facilities is minimised. ■ The development complies with the provisions of section **13d Scone Regional Airport** *Note: Upper Hunter Shire Council operates a regional airport in Scone. In addition it is likely that there are other private airstrips, helipads or aviation facilities within the Shire*.	

Outcomes to be achieved	Design guidelines
N. Tourism ■ Where a proposal includes 25 or more wind turbines, an area where vehicles and pedestrians (the public) can manoeuvre safely is provided in a position which allows for the safe viewing of the wind farm and provides information on the development. Consultation with Council and the RMS (where applicable) must be undertaken to identify a suitable location.	
O. Environmental management ■ If development consent is granted for the proposal, an environmental management plan (EMP) for the proposal is prepared. It will comprise in detail the construction, commissioning, operation and post monitoring of the development. *Note: It is likely that if development consent is granted for the proposal, a condition of approval relating to the above will be included. The exact requirements of the EMP will be identified in the condition.*	
P. Decommissioning ■ In the event of the wind farm or any wind turbines becoming redundant (not used for generation of electricity for a continuous period of 12 months or more), the dismantling and removal of all structures associated with the development and subsequent site rehabilitation will be required within a period of six months. *Note: It is likely that if development consent is granted for the proposal, a condition of approval relating to the above will be included*	

8c.8 Supplementary guidance

The following documents or reference materials provide further advice or information that is relevant to this section.

General

Wind Energy Guideline for State significant wind energy development - December 2016 (NSW Department of Planning and Environment 2016) available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/wind-energy-guideline-for-state-significant-wind-energy-development-2016-12.pdf

Resources from the National Wind Farm Commissioner - https://www.nwfc.gov.au/resources

Best Practice Guidelines for implementation of Wind Energy Projects in Australia (Clean Energy Council, 2013)

Best Practice Guidelines for implementation of Wind Energy Projects in Australia (Auswind, 2006)

Draft National Wind Farm Development Guidelines (The Environment Protection and Heritage Council July 2010)

Noise

Wind Energy: Noise Assessment Bulletin For State significant wind energy development ,December 2016 (NSW Government, Department of Planning and Environment) available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-noise-assessment-bulletin-2016-12.pdf

Visual

Wind Energy: Visual Assessment Bulletin For State significant wind energy development, December 2016 (NSW Government, Department of Planning and Environment) available at https://www.planning.nsw.gov.au/-/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-visual-assessment-bulletin-2016-12.pdf/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-visual-assessment-bulletin-2016-12.pdf

Wind Farms and Landscape Values: National Assessment Framework (Australian Wind Energy Association and Australian Council of National Trust, June 2007)

Ecology

Cumulative Risk for Threatened and Migratory Species (Commonwealth Department of Environment and Heritage, March 2006)

Wind Farms and Birds: Interim Standards for Risk Assessment, (Auswind, July 2005)

Assessing the impacts on Birds - Protocols and Data Set Standards (Australian Wind Energy Associations)

(Note that more relevant, updated guidelines are probably available for this subject)

Aviation Hazard

Advisory Circular 139-18(0) Obstacle Marking and Lighting of Wind Farms (Civil Aviation Safety Authority, July 2007) Advisory document only.

Wind farm Policy (Aerial Agricultural Association of Australia, December 2009)

Powerlines Policy (Aerial Agricultural Association of Australia, December 2009)

Information Sheet - Airport Related Development (Air services Australia)

(Note that more relevant, updated guidelines are also probably available for this subject)

Water Quality

National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)

NSW State Groundwater Quality Protection Policy (DLWC, 1998)

NSW State Groundwater Dependent Ecosystems Policy (DLWC 2002)

Department of Water and Energy's Guidelines for Controlled Activities (February 2008)

- Watercourse Crossings;
- Instream Works
- Laying Pipes and Cables in Watercourses;
- Outlet Structures; and

- Riparian Corridors

(Note that more relevant, updated guidelines are probably available for this subject)

Managing Urban Stormwater: Soils and Construction, Volume 1, 4th edition (Landcom 2004)

Managing Urban Stormwater: Soils and Construction, Volume 2C unsealed roads (DECC)