

E18.0 Wind and Solar Energy Code

E18.1 Purpose

E18.1.1 The purpose of this provision is to:

- (a) facilitate the establishment of small to medium scale renewable energy generation facilities using wind turbines and solar panels;
- (b) maximise efficient generation and supply of electricity by wind turbines or solar panels;
- (c) minimise adverse impacts to natural, rural or built landscapes whilst accepting that wind turbines have particular location and design needs for their efficient operation that may require siting in visually prominent landscapes;
- (d) avoid unreasonable impacts on residential amenity.

E18.2 Application

- E18.2.1
- (a) This code applies to development for the purpose of electricity generation by wind turbines or solar panels including associated buildings and works.
 - (b) This code does not apply to development for the purpose of electricity generation by wind turbines or solar panels that are regulated as Level 2 or Level 3 activity under the Environmental Management and Pollution Control Act 1994.
 - (c) This code does not apply to use.

E18.3 Definition of Terms

E18.3.1 In this code, unless the contrary intention appears:

urban zones	means the General Residential Zone, Inner Residential Zone, Low Density Residential Zone, Rural Living Zone, Urban Mixed Use Zone, Village Zone, Community Purpose Zone, Recreation Zone, Local Business Zone, General Business Zone, Central Business Zone, Commercial Zone, Light Industrial Zone, General Industrial Zone, Port and Marine Zone and any Particular Purpose Zone.
non-urban zones	means the Environmental Living Zone, Open Space Zone, Rural Resource Zone, Significant Agriculture Zone, Environmental Management, Major Tourism Zone and Utilities Zone.
visual impact assessment	means a report from a suitably qualified person that considers the impact of the proposed development on the landscape and may include measures to avoid, mitigate or minimise impacts.

E18.4 Development Exempt from this Code

E18.4.1 No development is exempt from this code.

E18.5 Application Requirements

E18.5.1 In addition to any other application requirements, the planning authority may require the applicant to provide the following information to determine compliance with development standards:

- (a) a visual impact assessment;
- (b) an assessment, by a suitably qualified person, on potential electrical or communications interference;
- (c) an assessment, by a suitably qualified person, on the duration and intensity of noise, shadow flicker, reflection or blade glint impacting on any sensitive use on adjacent land.

E18.6 Use Standards

There are no use standards in this Code.

E18.7 Development Standards for Wind Turbines

E18.7.1 Design and Siting of Free-Standing Wind Turbines in urban zones

Objective:	
To manage the visual impact of wind turbines in urban zones.	
Acceptable Solutions	Performance Criteria
A1 The height of a free-standing wind turbine above natural ground level, measured to either the top of a pole or tower for a horizontal blade system or the highest point of a vertical blade system, must be no more than the height specified for acceptable solutions in Table E18.2 for the applicable zone.	P1 The height of a free-standing wind turbine must be no more than the height specified for performance criteria in Table E18.2 for the applicable zone, and must be designed and sited to minimise change to the landscape or streetscape having regard to the following: <ul style="list-style-type: none">(a) the compatibility of the height with other buildings and structures within 100 m;(b) the impact on significant views from public land;(c) uniformity of colour, size and shape if multiple wind turbines.

E18.7.2 Design and Siting of Free-Standing Wind Turbines in non-urban zones

Objective:	
To manage the visual impact of wind turbines in non-urban zones.	
Acceptable Solutions	Performance Criteria
<p>A1</p> <p>The design and siting of a free-standing wind turbine must comply with all of the following:</p> <ul style="list-style-type: none"> (a) use existing infrastructure; (b) be externally finished and maintained in a neutral colour that minimises visual intrusiveness; (c) not: <ul style="list-style-type: none"> (i) be located on skylines that can be seen in silhouette; (ii) be aligned diagonally to the principal slope of a hill; (iii) cross at a low point of a saddle between hills; (iv) be located around the base of a hill; (v) be along the edge of an existing clearing; (vi) be artificially lit unless required for air navigation safety; (vii) be used for signage purposes, other than necessary warning and equipment information, (d) be setback to a front, side or rear boundary less than the applicable setback for the zone; (e) screen equipment housing and other visually intrusive infrastructure from public view. 	<p>P1</p> <p>The design and siting of a free-standing wind turbine must ensure any detrimental impact upon visual amenity is minimised by:</p> <ul style="list-style-type: none"> (a) reducing the prominence of the structure; and (b) protecting important public views such as vistas to significant public buildings, streetscapes and heritage areas.

<p>A2</p> <p>The height of a free-standing wind turbine above natural ground level, measured to either the top of a pole or tower for a horizontal blade system or the highest point of a vertical blade system, must be no more than the height specified for acceptable solutions in Table E18.2 for the applicable zone.</p>	<p>P2</p> <p>The height of a free-standing wind turbine must be no more than the height specified for performance criteria in Table E18.2 for the applicable zone and must be designed and sited to minimise change to the surrounding natural or rural setting and existing views having regard to the following:</p> <ul style="list-style-type: none"> (a) the extent to which topography or vegetation minimises change to short or medium range views from public roads, public land, sensitive uses and public or private tourism facilities; (b) the impact on topographical features such as the coastline, watercourses, ridgelines, skylines and hillsides; (c) the extent of undergrounding of incidental works such as powerlines; (d) uniformity of colour, size and shape if multiple wind turbines; (e) the distance to public land used for formal or informal recreation and settlements; (f) the regular spacing of multiple wind turbines if in open or flat landscapes or farmed landscapes; (g) the irregular spacing of multiple wind turbines if in areas of varied topography and vegetation distribution.
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E18.7.3 Separation from Sensitive Use

Objective:	
To manage potential impacts on a sensitive use.	
Acceptable Solutions	Performance Criteria
<p>A1</p> <p>A wind turbine must be separated from a sensitive use in accordance with Table E18.1.</p>	<p>P1</p> <p>A wind turbine must not cause unreasonable impact on the residential amenity of a nearby sensitive use and must satisfy all of the following:</p>

	<p>(a) no more than 30 hours of shadow flicker in a 12 month period;</p> <p>(b) no unreasonable reflection or blade glint impacts;</p> <p>(c) no unreasonable noise;</p> <p>(d) no unreasonable electrical or communications interference;</p> <p>(e) no excessive overshadowing.</p>
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E18.7.4 Efficiency of Roof Top Mounted Wind Turbines

Objective:	
To ensure that roof top mounted wind turbines can operate efficiently.	
Acceptable Solutions	Performance Criteria
<p>A1</p> <p>No acceptable solution.</p>	<p>P1</p> <p>Roof top mounted wind turbines must demonstrate that their potential operational efficiency will not be significantly reduced by surrounding buildings and topography.</p>

E18.7.5 Birdstrike Risk Reduction

Objective:	
To minimise impact to native bird and bat species.	
Acceptable Solutions	Performance Criteria
<p>A1</p> <p>Buildings and works must comply with one of the following:</p> <p>(a) not exceed the applicable maximum height specified for the acceptable solution in Table E18.2;</p> <p>(b) be separated from the following features by no less than 100m:</p>	<p>P1</p> <p>Buildings and works must minimise significant risk of collision with native bird and bat species.</p>

<ul style="list-style-type: none"> (i) any land within the biodiversity overlay with a High Priority Biodiversity Values or Medium Priority Biodiversity Values; (ii) the high water mark; (iii) a wetland. 	
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E18.8 Development Standards for Solar Panels

Objective:	
To ensure that the design and siting of ground mounted solar panels protects residential amenity and has minimal effect to any natural, rural or built setting.	
Acceptable Solutions	Performance Criteria
<p>A1</p> <p>The height above natural ground level is no more than 3 m.</p>	<p>P1</p> <p>The height above natural ground level must not exceed the permitted building height in the zone by and must satisfy all of the following:</p> <ul style="list-style-type: none"> (a) be reasonably screened from public spaces by topography, fencing, vegetation or buildings; (b) not unreasonably overshadow adjoining land.
<p>A2</p> <p>The total area is no more than 30m².</p>	<p>P2</p> <p>The area size must not cause an unreasonable impact on visual amenity, and must satisfy all of the following:</p> <ul style="list-style-type: none"> (a) be screened from public spaces by topography, vegetation fencing or existing buildings; (b) not cause excessive glare or reflectivity outside of the site.

Table E18.1 Distance from a Sensitive Use

Scale and Capacity	Minimum distance to a sensitive use
Wind energy facility with less than 250kW combined output	
(a) Single generator with less than 10kW individual capacity	60m
(b) Single generator with more than 10kW individual capacity	250m
(c) 2 – 4 generators regardless of individual capacity	350m
(d) 5 or more generators regardless of individual capacity	1000m
Wind energy facility with more than 250kW combined output	
(a) Single generator with less than 1000kW individual capacity	500m
(b) Single generator with more than 1000kW individual capacity	1000m
(c) 2 or more generators regardless of individual capacity	1000m

Table E18.2 Height of Free-Standing Wind Turbines in Zones

Zone	Maximum height for relevant acceptable solution	Maximum height for relevant performance criteria
General Residential Zone	12m	20m
Inner Residential Zone	12m	20m
Low Density Residential Zone	12m	20m
Rural Living Zone	12m	20m
Environmental Living Zone	12m	20m
Urban Mixed Use Zone	12m	20m
Village Zone	12m	20m
Community Purpose Zone	12m	20m
Recreation Zone	12m	20m
Open Space Zone	12m	25m

Local Business Zone	12m	20m
General Business Zone	15m	25m
Central Business Zone	15m	25m
Commercial Zone	15m	No maximum height
Light Industrial Zone	20m	No maximum height
General Industrial Zone	25m	No maximum height
Rural Resource Zone	25m	No maximum height
Significant Agricultural Zone	25m	No maximum height
Utilities Zone	25m	No maximum height
Environmental Management Zone	12m	No maximum height
Major Tourism Zone	12m	20m
Port and Marine Zone	25m	No maximum height
A Particular Purpose Zone	12m	20m