



Figure 5.7 | Northern Forested Mountains VCU

The mountains create distant backdrops to the Upper Hunter valley and hills. The forest covered steep hills and mountains contrast with the more open woodlands and grasslands that occupy the valleys and hills.



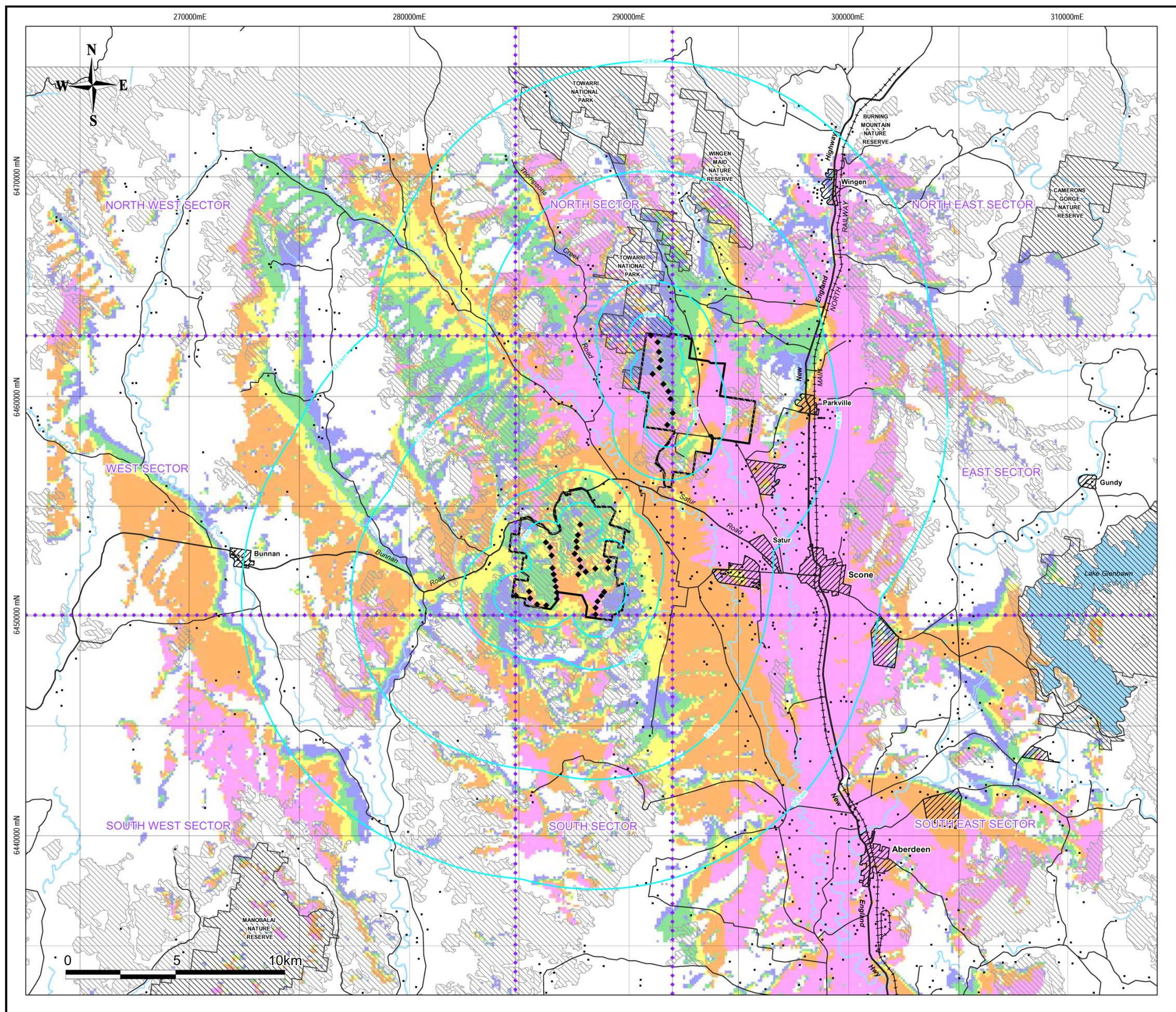


Figure 5.8 | Wooded Northern Hills and Mountains VCU

These hills create the edges to the enclosed valleys that adjoin Middlebrook, Thompsons, Sparkes and Keirns Creeks. The hills are generally steep and have been cleared to varying degrees to support forest, woodland and grassland. The hills are highly patterned reflecting the topography, exposed geology and vegetation.



Figure 5.8 | Northern Hills and Mountains VCU. The unit is highly distinctive and is generally seen as a background to other units within a range of visual settings.



Legend – Visual Influence

- Site Boundary
- Sector
- Turbine
- Built Up Area / Rural and Rural Residential Land Use Zonings
- Building
- Watercourse / Natural Drainage
- Lake / Reservoir
- Rail
- Main Road / Highway
- Local / Rural Roads
- Natural Vegetation

Turbines Visible

- 0% (0) *Note: Includes areas where data was not collected.*
- 20% (1 - 8)
- 40% (9 - 17)
- 60% (18 - 25)
- 80% (26 - 34)
- 100% (35 - 42)

NOTE (1): In built-up or unvegetated areas, some or all of the wind farm may be screened by buildings and/or vegetation. This is not taken into account and not represented on this map figure. The actual Visual Influence may therefore be significantly lower than depicted.

NOTE (2): All buildings were assumed to be dwellings. In reality many would be work sheds and have reduced Visual Influence. Buildings shown to be used as a guide only. Additional buildings may exist.

Figure 6.1
Zones of Visual Influence

NOTE: Areas with potential foreground effects include built up areas and significant stands of vegetation. Additional compilation data sourced from Geoscience Australia has been shown.

Map Datum and Projection Information:
Australian Geodetic Datum 1966
and Australian Map Grid
(Transverse Mercator) Zone 56.

Disclaimer: This Map has been produced for Planning and Development Information Purposes Only. All features shown on this map have not been completely field verified. In some instances the features shown may contain errors, omissions or inaccuracies.

Distance from turbines (km)	Primary View Zone Radius	Primary View Zone Area	Turbine Area	Turbine Area as Percentage of PVZ Area if 100% of turbines visible	If 80% of turbines visible	If 60% of turbines visible	If 40% of turbines visible	If 20% of turbines visible
1	0.577350269	0.523598776	0.14433757	27.6%	22.1%	16.5%	11.0%	5.5%
1.5	0.866025404	1.178097245	0.21650635	18.4%	14.7%	11.0%	7.4%	3.7%
2	1.154700538	2.094395102	0.28867513	13.8%	11.0%	8.3%	5.5%	2.8%
2.5	1.443375673	3.272492347	0.36084392	11.0%	8.8%	6.6%	4.4%	2.2%
3	1.732050808	4.71238898	0.4330127	9.2%	7.4%	5.5%	3.7%	1.8%
3.5	2.020725942	6.414085001	0.50518149	7.9%	6.3%	4.7%	3.2%	1.6%
4	2.309401077	8.37758041	0.57735027	6.9%	5.5%	4.1%	2.8%	1.4%
4.5	2.598076211	10.60287521	0.64951905	6.1%	4.9%	3.7%	2.5%	1.2%
5	2.886751346	13.08996939	0.72168784	5.5%	4.4%	3.3%	2.2%	1.1%
5.5	3.175426481	15.83886296	0.76625	4.8%	3.9%	2.9%	1.9%	1.0%
6	3.464101615	18.84955592	0.76625	4.1%	3.3%	2.4%	1.6%	0.8%
6.5	3.75277675	22.12204827	0.76625	3.5%	2.8%	2.1%	1.4%	0.7%
7	4.041451884	25.65634	0.76625	3.0%	2.4%	1.8%	1.2%	0.6%
7.5	4.330127019	29.45243113	0.76625	2.6%	2.1%	1.6%	1.0%	0.5%
8	4.618802154	33.51032164	0.76625	2.3%	1.8%	1.4%	0.9%	0.5%
8.5	4.907477288	37.83001154	0.76625	2.0%	1.6%	1.2%	0.8%	0.4%
9	5.196152423	42.41150082	0.76625	1.8%	1.4%	1.1%	0.7%	0.4%
9.5	5.484827557	47.2547895	0.76625	1.6%	1.3%	1.0%	0.6%	0.3%
10	5.773502692	52.35987756	0.76625	1.5%	1.2%	0.9%	0.6%	0.3%
10.5	6.062177826	57.72676501	0.76625	1.3%	1.1%	0.8%	0.5%	0.3%
11	6.350852961	63.35545185	0.76625	1.2%	1.0%	0.7%	0.5%	0.2%
11.5	6.639528096	69.24593807	0.76625	1.1%	0.9%	0.7%	0.4%	0.2%
12	6.92820323	75.39822369	0.76625	1.0%	0.8%	0.6%	0.4%	0.2%
12.5	7.216878365	81.81230869	0.76625	0.9%	0.7%	0.6%	0.4%	0.2%
13	7.505553499	88.48819308	0.76625	0.9%	0.7%	0.5%	0.3%	0.2%
13.5	7.794228634	95.42587685	0.76625	0.8%	0.6%	0.5%	0.3%	0.2%
14	8.082903769	102.62536	0.76625	0.7%	0.6%	0.4%	0.3%	0.1%
14.5	8.371578903	110.0866426	0.76625	0.7%	0.6%	0.4%	0.3%	0.1%
15	8.660254038	117.8097245	0.76625	0.7%	0.5%	0.4%	0.3%	0.1%
15.5	8.948929172	125.7946058	0.76625	0.6%	0.5%	0.4%	0.2%	0.1%
16	9.237604307	134.0412866	0.76625	0.6%	0.5%	0.3%	0.2%	0.1%
16.5	9.526279442	142.5497667	0.76625	0.5%	0.4%	0.3%	0.2%	0.1%
17	9.814954576	151.3200461	0.76625	0.5%	0.4%	0.3%	0.2%	0.1%
17.5	10.10362971	160.352125	0.76625	0.5%	0.4%	0.3%	0.2%	0.1%
18	10.39230485	169.6460033	0.76625	0.5%	0.4%	0.3%	0.2%	0.1%
18.5	10.68097998	179.2016809	0.76625	0.4%	0.3%	0.3%	0.2%	0.1%
19	10.96965511	189.019158	0.76625	0.4%	0.3%	0.2%	0.2%	0.1%
19.5	11.25833025	199.0984344	0.76625	0.4%	0.3%	0.2%	0.2%	0.1%
20	11.54700538	209.4395102	0.76625	0.4%	0.3%	0.2%	0.1%	0.1%
20.5	11.83568052	220.0423854	0.76625	0.3%	0.3%	0.2%	0.1%	0.1%
Horizontal distance of wind farm for this sector				6.13				
High effect if greater than				5.0%				
Medium effect if between				2.5%	and	5.0%		
Low effect if less than				2.5%				

Figure 6.2 | Visual Effect Levels Northern and Southern Sectors

Distance from turbines (km)	Primary View Zone Radius	Primary View Zone Area	Turbine Area	Turbine Area as Percentage of PVZ Area if 100% of turbines visible	If 80% of turbines visible	If 60% of turbines visible	If 40% of turbines visible	If 20% of turbines visible
1	0.577350269	0.523598776	0.14433757	27.6%	22.1%	16.5%	11.0%	5.5%
1.5	0.866025404	1.178097245	0.21650635	18.4%	14.7%	11.0%	7.4%	3.7%
2	1.154700538	2.094395102	0.28867513	13.8%	11.0%	8.3%	5.5%	2.8%
2.5	1.443375673	3.272492347	0.36084392	11.0%	8.8%	6.6%	4.4%	2.2%
3	1.732050808	4.71238898	0.4330127	9.2%	7.4%	5.5%	3.7%	1.8%
3.5	2.020725942	6.414085001	0.50518149	7.9%	6.3%	4.7%	3.2%	1.6%
4	2.309401077	8.37758041	0.57735027	6.9%	5.5%	4.1%	2.8%	1.4%
4.5	2.598076211	10.60287521	0.64951905	6.1%	4.9%	3.7%	2.5%	1.2%
5	2.886751346	13.08996939	0.72168784	5.5%	4.4%	3.3%	2.2%	1.1%
5.5	3.175426481	15.83886296	0.79385662	5.0%	4.0%	3.0%	2.0%	1.0%
6	3.464101615	18.84955592	0.8660254	4.6%	3.7%	2.8%	1.8%	0.9%
6.5	3.75277675	22.12204827	0.93819419	4.2%	3.4%	2.5%	1.7%	0.8%
7	4.041451884	25.65634	1.01036297	3.9%	3.2%	2.4%	1.6%	0.8%
7.5	4.330127019	29.45243113	1.08253175	3.7%	2.9%	2.2%	1.5%	0.7%
8	4.618802154	33.51032164	1.1	3.3%	2.6%	2.0%	1.3%	0.7%
8.5	4.907477288	37.83001154	1.1	2.9%	2.3%	1.7%	1.2%	0.6%
9	5.196152423	42.41150082	1.1	2.6%	2.1%	1.6%	1.0%	0.5%
9.5	5.484827557	47.2547895	1.1	2.3%	1.9%	1.4%	0.9%	0.5%
10	5.773502692	52.35987756	1.1	2.1%	1.7%	1.3%	0.8%	0.4%
10.5	6.062177826	57.72676501	1.1	1.9%	1.5%	1.1%	0.8%	0.4%
11	6.350852961	63.35545185	1.1	1.7%	1.4%	1.0%	0.7%	0.3%
11.5	6.639528096	69.24593807	1.1	1.6%	1.3%	1.0%	0.6%	0.3%
12	6.92820323	75.39822369	1.1	1.5%	1.2%	0.9%	0.6%	0.3%
12.5	7.216878365	81.81230869	1.1	1.3%	1.1%	0.8%	0.5%	0.3%
13	7.505553499	88.48819308	1.1	1.2%	1.0%	0.7%	0.5%	0.2%
13.5	7.794228634	95.42587685	1.1	1.2%	0.9%	0.7%	0.5%	0.2%
14	8.082903769	102.62536	1.1	1.1%	0.9%	0.6%	0.4%	0.2%
14.5	8.371578903	110.0866426	1.1	1.0%	0.8%	0.6%	0.4%	0.2%
15	8.660254038	117.8097245	1.1	0.9%	0.7%	0.6%	0.4%	0.2%
15.5	8.948929172	125.7946058	1.1	0.9%	0.7%	0.5%	0.3%	0.2%
16	9.237604307	134.0412866	1.1	0.8%	0.7%	0.5%	0.3%	0.2%
16.5	9.526279442	142.5497667	1.1	0.8%	0.6%	0.5%	0.3%	0.2%
17	9.814954576	151.3200461	1.1	0.7%	0.6%	0.4%	0.3%	0.1%
17.5	10.10362971	160.352125	1.1	0.7%	0.5%	0.4%	0.3%	0.1%
18	10.39230485	169.6460033	1.1	0.6%	0.5%	0.4%	0.3%	0.1%
18.5	10.68097998	179.2016809	1.1	0.6%	0.5%	0.4%	0.2%	0.1%
19	10.96965511	189.019158	1.1	0.6%	0.5%	0.3%	0.2%	0.1%
19.5	11.25833025	199.0984344	1.1	0.6%	0.4%	0.3%	0.2%	0.1%
20	11.54700538	209.4395102	1.1	0.5%	0.4%	0.3%	0.2%	0.1%
20.5	11.83568052	220.0423854	1.1	0.5%	0.4%	0.3%	0.2%	0.1%
Horizontal distance of wind farm for this sector			8.8					
High effect if greater than			5.0%					
Medium effect if between			2.5%	and	5.0%			
Low effect if less than			2.5%					

Figure 6.3 | Visual Effect Levels North East and South West Sectors

Distance from turbines (km)	Primary View Zone Radius	Primary View Zone Area	Turbine Area	Turbine Area as Percentage of PVZ Area if 100% of turbines visible	If 80% of turbines visible	If 60% of turbines visible	If 40% of turbines visible	If 20% of turbines visible
1	0.577350269	0.523598776	0.14433757	27.6%	22.1%	16.5%	11.0%	5.5%
1.5	0.866025404	1.178097245	0.21650635	18.4%	14.7%	11.0%	7.4%	3.7%
2	1.154700538	2.094395102	0.28867513	13.8%	11.0%	8.3%	5.5%	2.8%
2.5	1.443375673	3.272492347	0.36084392	11.0%	8.8%	6.6%	4.4%	2.2%
3	1.732050808	4.71238898	0.4330127	9.2%	7.4%	5.5%	3.7%	1.8%
3.5	2.020725942	6.414085001	0.50518149	7.9%	6.3%	4.7%	3.2%	1.6%
4	2.309401077	8.37758041	0.57735027	6.9%	5.5%	4.1%	2.8%	1.4%
4.5	2.598076211	10.60287521	0.64951905	6.1%	4.9%	3.7%	2.5%	1.2%
5	2.886751346	13.08996939	0.72168784	5.5%	4.4%	3.3%	2.2%	1.1%
5.5	3.175426481	15.83886296	0.79385662	5.0%	4.0%	3.0%	2.0%	1.0%
6	3.464101615	18.84955592	0.8660254	4.6%	3.7%	2.8%	1.8%	0.9%
6.5	3.75277675	22.12204827	0.93819419	4.2%	3.4%	2.5%	1.7%	0.8%
7	4.041451884	25.65634	1.01036297	3.9%	3.2%	2.4%	1.6%	0.8%
7.5	4.330127019	29.45243113	1.0625	3.6%	2.9%	2.2%	1.4%	0.7%
8	4.618802154	33.51032164	1.0625	3.2%	2.5%	1.9%	1.3%	0.6%
8.5	4.907477288	37.83001154	1.0625	2.8%	2.2%	1.7%	1.1%	0.6%
9	5.196152423	42.41150082	1.0625	2.5%	2.0%	1.5%	1.0%	0.5%
9.5	5.484827557	47.2547895	1.0625	2.2%	1.8%	1.3%	0.9%	0.4%
10	5.773502692	52.35987756	1.0625	2.0%	1.6%	1.2%	0.8%	0.4%
10.5	6.062177826	57.72676501	1.0625	1.8%	1.5%	1.1%	0.7%	0.4%
11	6.350852961	63.35545185	1.0625	1.7%	1.3%	1.0%	0.7%	0.3%
11.5	6.639528096	69.24593807	1.0625	1.5%	1.2%	0.9%	0.6%	0.3%
12	6.92820323	75.39822369	1.0625	1.4%	1.1%	0.8%	0.6%	0.3%
12.5	7.216878365	81.81230869	1.0625	1.3%	1.0%	0.8%	0.5%	0.3%
13	7.505553499	88.48819308	1.0625	1.2%	1.0%	0.7%	0.5%	0.2%
13.5	7.794228634	95.42587685	1.0625	1.1%	0.9%	0.7%	0.4%	0.2%
14	8.082903769	102.62536	1.0625	1.0%	0.8%	0.6%	0.4%	0.2%
14.5	8.371578903	110.0866426	1.0625	1.0%	0.8%	0.6%	0.4%	0.2%
15	8.660254038	117.8097245	1.0625	0.9%	0.7%	0.5%	0.4%	0.2%
15.5	8.948929172	125.7946058	1.0625	0.8%	0.7%	0.5%	0.3%	0.2%
16	9.237604307	134.0412866	1.0625	0.8%	0.6%	0.5%	0.3%	0.2%
16.5	9.526279442	142.5497667	1.0625	0.7%	0.6%	0.4%	0.3%	0.1%
17	9.814954576	151.3200461	1.0625	0.7%	0.6%	0.4%	0.3%	0.1%
17.5	10.10362971	160.352125	1.0625	0.7%	0.5%	0.4%	0.3%	0.1%
18	10.39230485	169.6460033	1.0625	0.6%	0.5%	0.4%	0.3%	0.1%
18.5	10.68097998	179.2016809	1.0625	0.6%	0.5%	0.4%	0.2%	0.1%
19	10.96965511	189.019158	1.0625	0.6%	0.4%	0.3%	0.2%	0.1%
19.5	11.25833025	199.0984344	1.0625	0.5%	0.4%	0.3%	0.2%	0.1%
20	11.54700538	209.4395102	1.0625	0.5%	0.4%	0.3%	0.2%	0.1%
20.5	11.83568052	220.0423854	1.0625	0.5%	0.4%	0.3%	0.2%	0.1%
Horizontal distance of wind farm for this sector			8.5					
High effect if greater than			5.0%					
Medium effect if between			2.5%	and	5.0%			
Low effect if less than			2.5%					

Figure 6.4 | Visual Effect Levels East and West Sectors

Distance from turbines (km)	Primary View Zone Radius	Primary View Zone Area	Turbine Area	Turbine Area as Percentage of PVZ Area if 100% of turbines visible	If 80% of turbines visible	If 60% of turbines visible	If 40% of turbines visible	If 20% of turbines visible
1	0.577350269	0.523598776	0.14433757	27.6%	22.1%	16.5%	11.0%	5.5%
1.5	0.866025404	1.178097245	0.21650635	18.4%	14.7%	11.0%	7.4%	3.7%
2	1.154700538	2.094395102	0.28867513	13.8%	11.0%	8.3%	5.5%	2.8%
2.5	1.443375673	3.272492347	0.36084392	11.0%	8.8%	6.6%	4.4%	2.2%
3	1.732050808	4.71238898	0.4330127	9.2%	7.4%	5.5%	3.7%	1.8%
3.5	2.020725942	6.414085001	0.50518149	7.9%	6.3%	4.7%	3.2%	1.6%
4	2.309401077	8.37758041	0.57735027	6.9%	5.5%	4.1%	2.8%	1.4%
4.5	2.598076211	10.60287521	0.64951905	6.1%	4.9%	3.7%	2.5%	1.2%
5	2.886751346	13.08996939	0.72168784	5.5%	4.4%	3.3%	2.2%	1.1%
5.5	3.175426481	15.83886296	0.79385662	5.0%	4.0%	3.0%	2.0%	1.0%
6	3.464101615	18.84955592	0.8660254	4.6%	3.7%	2.8%	1.8%	0.9%
6.5	3.75277675	22.12204827	0.875	4.0%	3.2%	2.4%	1.6%	0.8%
7	4.041451884	25.65634	0.875	3.4%	2.7%	2.0%	1.4%	0.7%
7.5	4.330127019	29.45243113	0.875	3.0%	2.4%	1.8%	1.2%	0.6%
8	4.618802154	33.51032164	0.875	2.6%	2.1%	1.6%	1.0%	0.5%
8.5	4.907477288	37.83001154	0.875	2.3%	1.9%	1.4%	0.9%	0.5%
9	5.196152423	42.41150082	0.875	2.1%	1.7%	1.2%	0.8%	0.4%
9.5	5.484827557	47.2547895	0.875	1.9%	1.5%	1.1%	0.7%	0.4%
10	5.773502692	52.35987756	0.875	1.7%	1.3%	1.0%	0.7%	0.3%
10.5	6.062177826	57.72676501	0.875	1.5%	1.2%	0.9%	0.6%	0.3%
11	6.350852961	63.35545185	0.875	1.4%	1.1%	0.8%	0.6%	0.3%
11.5	6.639528096	69.24593807	0.875	1.3%	1.0%	0.8%	0.5%	0.3%
12	6.92820323	75.39822369	0.875	1.2%	0.9%	0.7%	0.5%	0.2%
12.5	7.216878365	81.81230869	0.875	1.1%	0.9%	0.6%	0.4%	0.2%
13	7.505553499	88.48819308	0.875	1.0%	0.8%	0.6%	0.4%	0.2%
13.5	7.794228634	95.42587685	0.875	0.9%	0.7%	0.6%	0.4%	0.2%
14	8.082903769	102.62536	0.875	0.9%	0.7%	0.5%	0.3%	0.2%
14.5	8.371578903	110.0866426	0.875	0.8%	0.6%	0.5%	0.3%	0.2%
15	8.660254038	117.8097245	0.875	0.7%	0.6%	0.4%	0.3%	0.1%
15.5	8.948929172	125.7946058	0.875	0.7%	0.6%	0.4%	0.3%	0.1%
16	9.237604307	134.0412866	0.875	0.7%	0.5%	0.4%	0.3%	0.1%
16.5	9.526279442	142.5497667	0.875	0.6%	0.5%	0.4%	0.2%	0.1%
17	9.814954576	151.3200461	0.875	0.6%	0.5%	0.3%	0.2%	0.1%
17.5	10.10362971	160.352125	0.875	0.5%	0.4%	0.3%	0.2%	0.1%
18	10.39230485	169.6460033	0.875	0.5%	0.4%	0.3%	0.2%	0.1%
18.5	10.68097998	179.2016809	0.875	0.5%	0.4%	0.3%	0.2%	0.1%
19	10.96965511	189.019158	0.875	0.5%	0.4%	0.3%	0.2%	0.1%
19.5	11.25833025	199.0984344	0.875	0.4%	0.4%	0.3%	0.2%	0.1%
20	11.54700538	209.4395102	0.875	0.4%	0.3%	0.3%	0.2%	0.1%
20.5	11.83568052	220.0423854	0.875	0.4%	0.3%	0.2%	0.2%	0.1%
Horizontal distance of wind farm for this sector			7					
High effect if greater than			5.0%					
Medium effect if between			2.5%	and	5.0%			
Low effect if less than			2.5%					

Figure 6.5 | Visual Effect Levels South East and North West Sectors