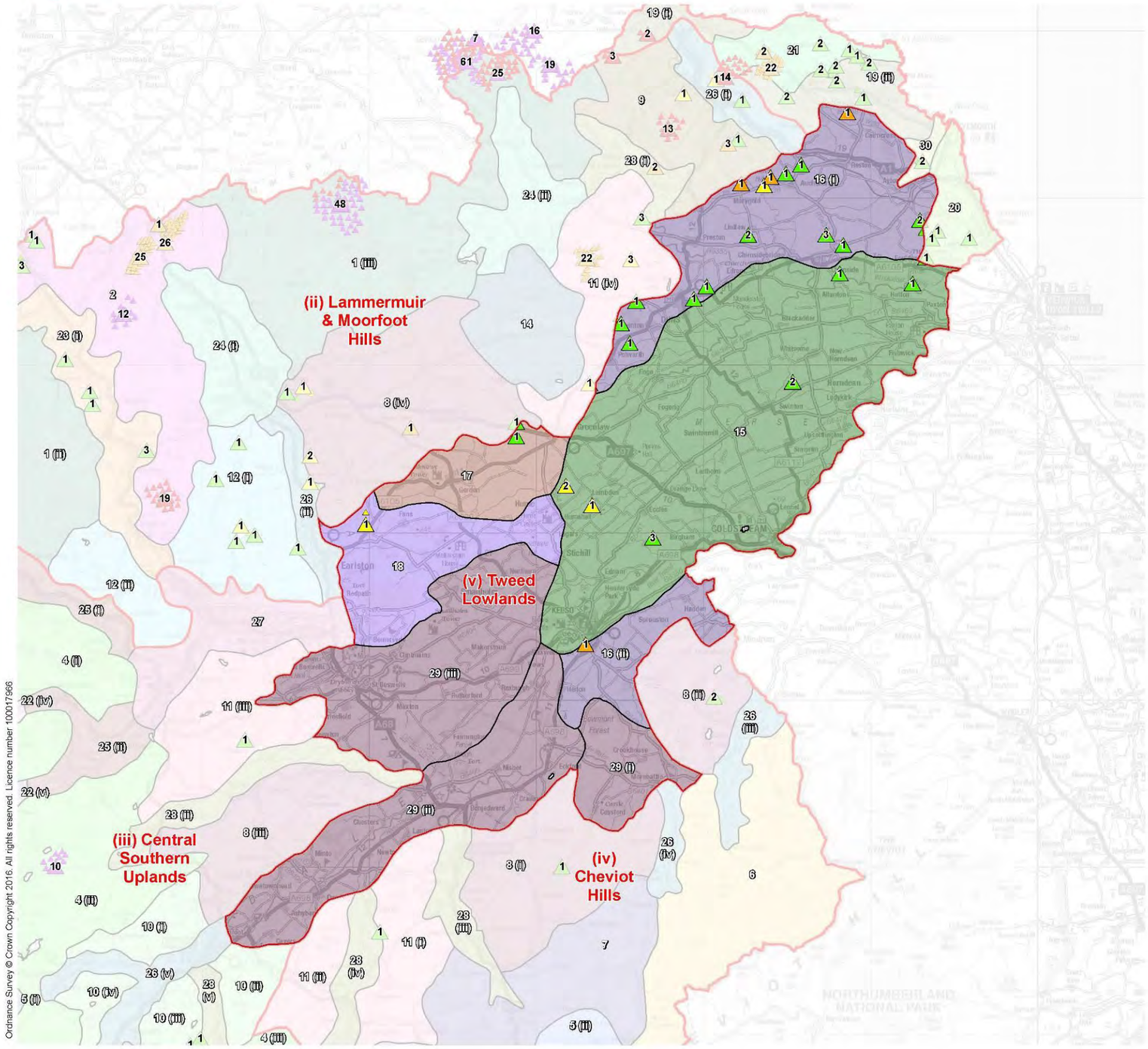
Figure 6.1 (v) - Tweed Lowlands



Legend

- Regional Landscape Areas
- Landscape Character Areas

Windfarm: Status, Height Category

- Operational / Consented, Cat 1: 15 to <35m
- Operational / Consented, Cat 2: 35 to <50m
- Operational / Consented, Cat 3: 50 to <80m
- Operational / Consented, Cat 4: 80 to <120m
- Operational / Consented, Cat 5: 120m+

Landscape Character Areas:

15 - Lowland with Drumlins
15 Lower Merse

16 - Rolling Lowland Margin
(i) Eye Water Lowlands
(ii) Maxwellheugh

17 - Lowland Margin Platoon
17 Gordon Platform

18 - Lowland Margin with Hills
18 Black Hill / Hume Crags

29 - Lowland Valley with Farmland
(i) Lower Kale
(ii) Lower Teviot
(iii) Lower Tweed

Table 6.1(v). Summary of Landscape Capacity and Cumulative Effects and Guidance for Future Wind Energy Development – Tweed Lowlands

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
15. Lowland with Drumlins: ***Lower Merse***																	
Med/ High	**Med/ High**	**Med/ High**	**Med/ High**	●	◯	◯	◯	◯	Several existing/ consented wind turbines varying in height from 15- to 80m lie within or close to this area.	***Lowlands with Occasional Wind Turbines***	***Lowlands with Occasional Wind Turbines***	●	◯	◯	◯	◯	**Landscape Analysis**: Extensive, mainly open lowland landscape of large horizontal and limited vertical scale. A strongly rectilinear pattern of arable fields separated by a grid-like network of roads and lanes imposed on a series of uniformly directional but gently undulating parallel ridges and hollows, broken up by the meandering more intimate scale courses of the Blackadder and Tweed. Shelterbelts and woodlands are infrequent and low, leaving wide open views across from the Lammermuir fringes in the north to the Cheviot in the south. Occasional small settlements and many scattered farms and houses, with a number of significant settlements on the margins. There are a number of inventory and other designed landscapes. The area is crossed by a number of overhead electricity lines. **Development Capacity:** Due to the openness and limited vertical scale of this undulating landscape there is capacity only for smaller turbines. These should be sensitively sited at separation distances sufficient to prevent the LCA becoming a *Landscape with Turbines*, taking advantage of subtle landform differences and tree belts to reduce visibility. Turbines would be best accommodated if visually associated with farmsteads and settlements. Siting should avoid adverse effects on settlements and designed landscapes in and around the edges of this large area and avoid cumulative effects with overhead lines.
											Max. Numbers in Group	*1-3*	*1-3*				
											Min Group Separation Distances (km)	*2-3*	*3-5*				
16. Rolling Lowland Margin: ***(i) Eye Water Lowland***																	
Med/ High	**Med/ High**	**Med/ High**	**Med**	●	◯	◯	◯	◯	Approximately 20 wind turbines from 15m to 80m lie within or close to this area.	***Lowlands with Occasional Wind Turbines/ with Wind Turbines***	***Lowlands with Occasional Wind Turbines/ with Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: A large scale, undulating, open landscape of mixed agriculture, with a northern escarpment rising gently to the upland fringes. Scattered shelterbelts and relatively few trees. Panoramic views to the south from higher areas. Scattered settlements including Duns, linked by a number or roads, including the busy A1 road to England. The East Coast railway also passes through this area. **Development Capacity:** This LCA has limited remaining capacity for smaller sized turbine development and currently risks exceeding capacity on the northern margin due to the established July 2016 baseline. Capacity is limited to the occasional well sited turbine as individual turbines or small groups, not exceeding 3no. The south western area of this LCA has more limited capacity due to the settlement of Duns and a higher degree of intervisibility. Care should also be taken when siting in areas close to the A1/ East Coast railway corridor in the north.
											Max. Numbers in Group	*1-3*	*1-3*				
											Min Group Separation Distances (km)	*2-3*	*3-5*				
16. Rolling Lowland Margin: ***(ii) Maxwellheugh***																	
Med/ High	**Med/ High**	**Med/ High**	**Med**	◯	◯	◯	◯	◯	One consented 50-80m wind turbine in Kelso lies close to this area.	***Lowlands with Occasional Wind Turbines***	***Lowlands with Occasional Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: See above for description of type. A much smaller area, rising distinctly above the Tweed to the south of Kelso. Panoramic views N over the Merse to Lammermuir fringes. Settlements including the

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
											Max. Numbers in Group	*1-3*	*1-3*				edge of Kelso, is mainly along the edge of the Tweed floodplain. Elsewhere farms and houses are linked by a grid of lanes. The A688 road to England passes the western end.
											Min Group Separation Distances (km)	*2-3*	*3-5*				**Development Capacity:** Capacity for turbines in this LCA is limited due to the open exposed character and the topography allowing long distance views to and from the settlement of Kelso and the flat farmland to the north. Larger turbines can be sited to the southeastern edges of this area to avoid the prominent north facing escarpment above the Tweed.
17. Lowland Margin Platform: *Gordon Platform*																	
Med/ High	**Med/ High**	**Med/ High**	**Med**	◯	◯	◯	◯	◯	A few wind turbines between 15 and 50m lie in or close to this area.	***Lowlands with no/ Occasional Wind Turbines***	***Lowlands with Occasional Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: Large scale undulating landscape of mixed agriculture with large fields divided by stone dykes and widely dispersed mixed woodland blocks and shelterbelts. Similar to surrounding areas of Rolling Farmland and Lowland Margin with Hills, but without distinctive hills. Mainly scattered farms and houses but centred on the village of Gordon and traversed by the A6105. Two overhead electricity lines traverse the southern part.
											Max. Numbers in Group	*1-3*	*1-3*	*1-3*			**Development Capacity:** Due to the openness and limited vertical scale of this undulating landscape there is capacity only for smaller turbines. These should be sensitively sited at separation distances sufficient to prevent the LCA becoming a Landscape with Turbines, taking advantage of subtle landform and tree belts to reduce visibility. Turbines would be best accommodated in association with farmsteads. Siting should avoid adverse effects on the settlement of Gordon and avoid cumulative effects with overhead lines
											Min Group Separation Distances (km)	*2-3*	*3-5*	*5-10*			
18. Lowland Margin with Hills: *Black Law/ Hume Crags*																	
Med/ High	**High**	**Med/ High**	**Med/ High**	◯	◯	◯	◯	◯	One 35-50m wind turbine lies in this area and 2 just to the east	***Lowlands with no/ Occasional Wind Turbines***	***Lowlands with Occasional Wind Turbines/ no Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: Large scale undulating landscape of mixed agriculture with large fields divided by stone dykes/ hedges and widely dispersed mixed woodland blocks and shelterbelts. Similar to surrounding areas of Rolling Farmland and Lowland Margin Platform but with distinctive rocky hills. Western edge above the Tweed lies in the Eildon and Leaderfoot NSA and the southwestern edge in Tweed Lowlands SLA. Extensive designed landscape of Mellerstain House occupies middle of the LCA. A number of the hills are characterised by hillforts, with Hume Castle prominent at the eastern end. An overhead electricity line crosses the northern edge of this area.
											Max. Numbers in Group	*1-3*					**Development Capacity:** Due to the undulating open landscape character there is limited capacity for individual or small groups of smaller turbines only. There is no capacity along the west edge of the LCA due to the NSA and capacity is also limited by the designed landscape designation. Turbines should not be placed close to the prominent but modest scale rock outcrops and distinctive hills. In particular, turbines should not adversely affect the setting of the key landscape feature of Hume Castle.
											Min Group Separation Distances (km)	*2-3*					

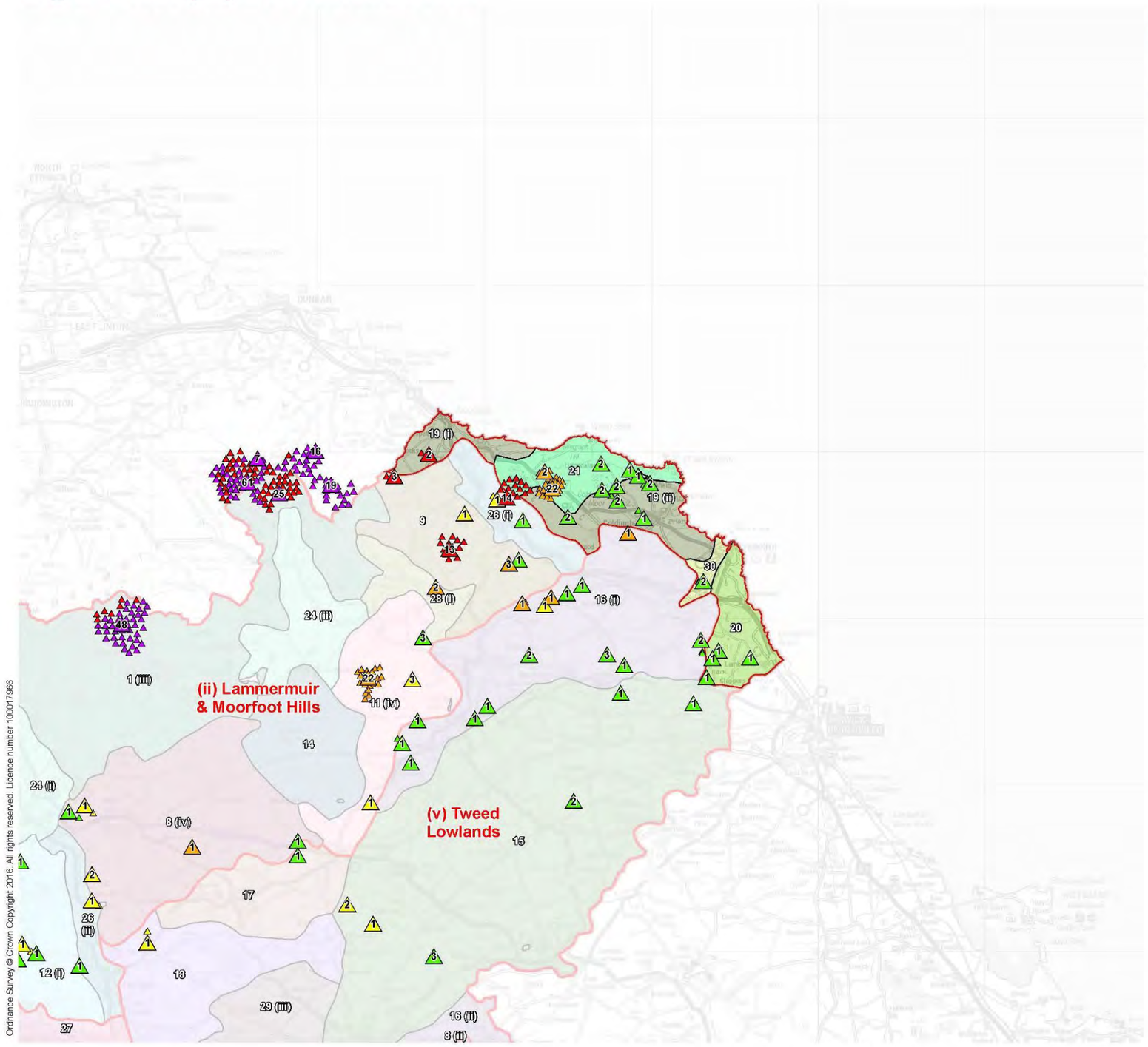
Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
29. Lowland Valley with Farmland: *(i) Lower Kale*																	
High	**Med/ High**	**High**	**Med/ High**	◯	◯	◯	◯	◯	There are no wind turbines within or close to this area.	***Lowlands with no Wind Turbines***	***Lowlands with Occasional Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: Medium to large scale broad lowland valley landscapes, originating from between hills to converge and drain into the Merse. Undulating valley sides of mixed agriculture with large fields divided by hedges and occasional predominantly broadleaf tree belts and woodland blocks. Flat valley floor floodplain with meandering river. Overlooked by occasional prominent hills and bluffs. Well populated with small towns, villages and farms and traversed by a network of roads. Due to the open, lowland valley character of this landscape type it has no capacity for larger wind turbine or windfarm developments. The Kale LCA is the smallest of the areas; draining west from the Cheviot Uplands through a wide flat-floored basin into the Teviot. There are no landscape designations. **Development Capacity:** The Lower Kale, due to lack of designation and its open undulating nature has limited capacity for smaller size turbines, as smaller groups or single. These should be associated with farmsteads on the valley sides as the flat valley floor is often smaller scale with characteristic terrace formations.
											Max. Numbers in Group	*1-3*	*1*				
											Min Group Separation Distances (km)	*2-3*	*3-5*				
29. Lowland Valley with Farmland: *(ii) Lower Teviot*																	
High	**High**	**High**	**High**	◯	◯	◯	◯	◯	There are no wind turbines within or close to this area.	***Lowlands with no Wind Turbines***	***Lowlands with Occasional Wind Turbines/ no Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: See above for description of type. The Lower Teviot LCA is the longest of the areas; draining northeast from the Southern Uplands and Hawick, through a wide straight valley to join the Tweed at Kelso. The lower section is overlooked by Rubers Law, the Minto Hills and the rocky bluff of Cleuchhead. It is traversed by the A698 and contains several settlements. Most of this LCA is designated under the Teviot Valleys SLA and there are several designed landscapes including the inventory listed Monteviot. **Development Capacity:** The Lower Teviot has limited capacity for smaller size turbines, as smaller groups or single. Capacity is more limited in the extensive designated areas and near characteristic prominent landforms. Turbines should be associated with farmsteads on the valley sides or business/ industrial areas on the edge of settlements, as the flat valley floor is often smaller scale.
											Max. Numbers in Group	*1-3*	*1*				
											Min Group Separation Distances (km)	*2-3*	*3-5*				
29. Lowland Valley with Farmland: *(iii) Lower Tweed*																	
High	**High**	**High**	**High**	◯	◯	◯	◯	◯	There are no wind turbines within or close to this area.	***Lowlands with no Wind Turbines***	***Lowlands with Occasional Wind Turbines/ no Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: See above for description of type. The Lower Tweed LCA drains east from the St Boswells, through a broad valley with wide undulating sides to join the Teviot at Kelso. The upper section is overlooked by the Eildon Hills and there are occasional prominent skyline features such as Smailholm Tower. It is traversed by the A699 and contains several settlements. The western end of this SLA lies within the Eildon Hills and Leaderfoot NSA and most of the rest of the area is designated under the Lower Tweed SLA. There are several designed
											Max. Numbers in Group	*1-3*	*1*				

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
											Min Group Separation Distances (km)	*2-3*	*3-5*				landscapes including the inventory listed Bemeyerside, Dryburgh, Mertoun, Newton and Floors Castle. **Development Capacity:** The Lower Tweed has limited capacity for smaller size turbines, as smaller groups or single turbines. There is no capacity in the NSA and designed landscapes. Turbines should be associated with farmsteads on the valley sides or business/ industrial areas on the edge of settlements, as the flat valley floor tends to be a focal corridor for views. Care should be taken to ensure key views towards the Eildon Hills are not affected

Figure 6.1 (vi) - Coastal Zone



Legend

- Regional Landscape Areas
- Landscape Character Areas

Windfarm: Status, Height Category

- Operational / Consented, Cat 1: 15 to <35m
- Operational / Consented, Cat 2: 35 to <50m
- Operational / Consented, Cat 3: 50 to <80m
- Operational / Consented, Cat 4: 80 to <120m
- Operational / Consented, Cat 5: 120m+

Landscape Character Areas:

19 - Coastal Farmland
(i) Cockburnspath
(ii) Coldingham

20 - Coastal Pasture
20 Lamberton Moor

21 - Coastal Moorland
21 Coldinham Moor

30 - Coastal Valley
30 Lower Eye Water

8558_GIS_207.mxd

Table 6.1(vi). Summary of Landscape Capacity and Cumulative Effects and Guidance for Future Wind Energy Development – Coastal Zone

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
19. Coastal Farmland *(i) Cockburnspath*																	
Med/ High	**Med/ High**	**Med/ High**	**Med/ High**	●	◯	◯	◯	◯	There are several larger wind turbines within or close to this area: two 110m turbines at Neuk Farm, three 115m at Hoprigshiels, two 76m at Fernylea. The western end is influenced by the extensive Aikengall II windfarm on Monynut Edge.	***Coastal Zone with Wind Turbines/ No Wind Turbines***	***Coastal Zone with Wind Turbines/ No Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: Rolling mixed farmland landscape of diverse character; lowland character inland but with a coastal influence terminating in dramatic rocky coastline with secluded sandy bays. Predominantly large scale but more intimate secluded areas. Shelterbelts and woodlands concentrated in some areas but also leaving wide open views. Occasional small settlements and many scattered farms and houses. The Cockburnspath area is characterised by the transition from the high Lammermuir skyline in the west to the coast in the northeast. The two areas are separated by the settlement and the transport corridor of the A1 and West Coast mainline. The inventory designed landscape of Dunglass lies along the northwestern boundary and the coastal area is covered by the Berwickshire Coast SLA. The Southern Upland Way ends at Cove and Pease Bay is a holiday facility. The western end of the LCA is crossed by an overhead electricity line and characterised by a number of larger wind turbines within and adjacent to the LCA. **Development Capacity:** This LCA has limited underlying capacity for wind turbine development. Capacity is reduced by the openness of the landscape, designations and sensitive visual receptors. Remaining capacity is limited by potential for cumulative impacts with existing and consented wind turbines in or close to the LCA. Cumulative impact issues are a concern for larger scale turbines, but the smallest sized turbines could be accommodated if associated with built development. Turbines should be set well back from the coastal margin.
											Max. Numbers in Group	*1-3*					
											Min Group Separation Distances (km)	*2-3*					
19. Coastal Farmland *(ii) Coldingham*																	
Med/ High	**Med/ High**	**Med/ High**	**Med/ High**	◯	◯	◯	◯	◯	There are several 15-30m wind turbines within or close to this area and one 50-80m turbine just to the south. At the western end a number of larger turbines of Drone Hill and Penmanshiel windfarms are either within the LCA or adjacent.	***Coastal Zone with Wind Turbines/ No Wind Turbines***	***Coastal Zone with Wind Turbines/ No Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: see above for description of type. The Coldingham area is less influenced by transport. It is a transition from Coldingham Moor to the coast, with the highest areas over 200m AOD being rough pasture. The area north of the A1107 is covered by the Berwickshire Coast SLA and includes the village of Coldingham and the fishing port of St Abbs. The western end is characterised by the influence of Drone Hill and Penmanshiel windfarms within/ adjacent to the LCA. **Development Capacity:** This LCA has underlying capacity for smaller scale wind turbine development, including mid-size turbines in the higher western areas. Capacity is limited elsewhere by the coastal views, designations and sensitive visual receptors including settlements. Remaining capacity is limited by potential for cumulative impacts with existing and consented windfarms in the west. Proposals for larger scale turbines will require careful assessment for cumulative effects. The smallest sized turbines could be accommodated if associated with built development and similar established smaller turbines located away from the windfarms in the west. Turbines should be set well back from the coastal margin and respect the setting of the main settlements.
											Max. Numbers in Group	*1-3*	*1*				
											Min Group Separation Distances (km)	*2-3*	*3-4*				

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
20. Coastal Pasture ***Lamberton Moor***																	
Med/ High	**Med/ High**	**Med/ High**	**Med/ High**	●	◯	◯	◯	◯	There are six 15-30m wind turbines within or close to this area.	***Coastal Zone with Occasional Wind Turbines / No Wind Turbines***	***Coastal Zone with Occasional Wind Turbines/ No Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: Predominantly pastoral farmland landscape of diverse character; lowland on the west side but with a strong coastal influence on the east facing side. Characteristic hummocky landforms. Predominantly large scale but more intimate secluded areas. Shelterbelts and woodlands concentrated on the west side but the east side is more open with large fields or rough hilly pasture. A small flatter area of mainly arable land lies between the A1 and Eyemouth. Wide open views over surrounding lower ground or the sea. Occasional small settlements and scattered farms and houses. The A1 and west coast mainline pass across the north and east. The areas beyond this lie in the Berwickshire Coast SLA. **Development Capacity:** This LCA has underlying capacity for smaller scale wind turbine development, particularly in the higher rough pasture areas and possibly the arable area. Capacity is reduced elsewhere by the coastal views, designations and sensitive visual receptors including settlements and transport corridors. Turbines should be set well back from the coastal margin, respect the setting of the main settlements and avoid sensitive skylines. In higher areas existing subtle variations in landform and tree belts should be used to reduce visibility.
											Max. Numbers in Group	*1-3*	*1*				
											Min Group Separation Distances (km)	*2-3*	*3-5*				
21. Coastal Moorland ***Coldingham Moor***																	
Med/ High	**Med/ High**	**Med/ High**	**Med/ High**	●	●	◯	◯	◯	At the western end a number of larger turbines of Drone Hill and Penmanshiel windfarms are either within the LCA or adjacent. There are six further 15-30m wind turbines within or close to this area.	***Coastal Zone with Wind Turbines/ Occasional Wind Turbines / No Wind Turbines***	***Coastal Zone with Wind Turbines/ Occasional Wind Turbines / No Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: An exposed coastal plateau landscape of diverse character; with a strong coastal influence on the north edge which is girt by tall cliffs. Undulating landform falling away around the northern edges towards coastal cliffs. Large scale pasture and grass ley fields and areas of unimproved moorland pasture. Low tree cover concentrated in plantation woodlands. Open views contained by landform inland but panoramic over the sea and to the northeast. Occasional small settlements and scattered farms and houses. Traversed by the A1107 but few roads especially towards the coast. Most of this area lies in the Berwickshire Coast SLA. **Development Capacity:** This LCA has underlying capacity for smaller scale wind turbine development below 80m tall, particularly in the undulating plateau area. Capacity is reduced elsewhere by the coastal cliffscape and views and sensitive visual receptors including the Berwickshire coastal path. Remaining capacity in the west is limited by the existing windfarms at Drone Hill and Penmanshiel. Turbines should be set well back from the coastal margin, avoid sensitive skylines and significant adverse cumulative effects with the existing windfarms. Existing subtle variations in landform should be used to reduce wider visibility.
											Max. Numbers in Group	*1-3*					
											Min Group Separation Distances (km)	*2-3*					

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity**

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)									**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**						
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)					**Existing/ Consented Developments (July 2016)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Relt'd to turbine size)					**Analysis & Guidelines** (Refer to Detailed Guidance for Further Information on Siting and Design)
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**				**15-<35m**	**35-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	
30. Coastal Valley ***Lower Eye Water***																	
High	**Med**	**Med/ High**	**High**	◯	◯	◯	◯	◯	There are two 15-30m wind turbines within this area.	***Coastal Zone with Occasional Wind Turbines / No Wind Turbines***	***Coastal Zone with Occasional Wind Turbines/ No Wind Turbines***	◯	◯	◯	◯	◯	**Landscape Analysis**: Small scale enclosed valley landscape of mixed farmland with high broadleaved tree cover. Rolling landform surrounding a meandering watercourse. Views in and out well contained. The A1 passes across the south. Well populated: the northern part is dominated by Eyemouth village and the south includes Ayton and Ayton Castle with designed landscape. **Development Capacity:** This LCA has very limited underlying capacity for wind energy due to its intimate scale. Only occasional smallest scale wind turbines, preferably under 20m height can be accommodated. Turbines should be set well back from the coastal margin, respect the setting of the two main settlements and the designed landscape. Subtle variations in landform and tree belts should be used to reduce visibility.
											Max. Numbers in Group	*1-2*					
											Min Group Separation Distances (km)	*2-3*					

6.3 Landscape Capacity and Cumulative Development

This section summarises capacity and cumulative effects for the main regional landscape areas of Scottish Borders shown in Figure 3.3. Refer to Figure 6.2 for a map of current cumulative wind turbine landscape types and Figure 6.3 for a map illustrating the proposed future limit to wind turbine landscape types, as described in Table 6.1 above and summarised in the sections below.

6.3.1 Landscape Character, Sensitivity and Capacity

The landscape of the Scottish Borders is highly varied and complex consisting of a wide range of landscape types; most but not all of which are found in other parts of Scotland. It is a complex blend of lowland, upland and coastal landscapes predominantly based around the drainage of peripheral upland areas in the west, north and south into the east flowing River Tweed. The main population centres within the Scottish Borders are concentrated throughout the more sheltered lowlands and main river valleys where key infrastructure routes pass and join. There are significant numbers of moderate or small sized settlements within the Tweed and other valleys as well as the central and eastern agricultural lowlands where these rivers join and flow towards the North Sea.

6.3.2 Midland Valley: Summary of Capacity and Cumulative Development

The Midland Valley regional landscape area in the northwest comprises three LCTs; one Upland and two Upland Fringe, falling into three LCAs. The area is peripheral to the main upland areas, but is the one part of the Pentland Hills that drains southeast into the Tweed. All three landscape character areas have only limited capacity for wind energy development. There are some highly sensitive areas where no development is recommended.

Rolling Farmland near West Linton. There is scope for smaller turbines, up to 50m tall in this LCA. Larger turbines or windfarms would overwhelm the landform and features

Within the upland landscape character area, *Dissected Plateau Moorlands* there is a limited area contained by topography with low capacity for smaller sized turbines below 50m. The north western edge of this LCA has no capacity due to skyline prominence seen from Edinburgh and West Lothian and surrounding hilltops. The core areas also have a higher wildness value and recreational use. The Upland Fringe landscape types of *Rolling Farmland* and *Grassland with Hills* have a low to medium capacity for smaller turbine developments below 50m only. This is due to the medium scale, settled landscape character and visual sensitivity of settlements and roads.

In 2016 there was relatively little consented wind energy development in this area; comprising several 15-<35m turbines mainly located in the upland fringe LCAs, a trend that continues south into South Lanarkshire. The landscape varies between a *Landscape with Occasional Wind Turbines* and *No Turbines*.

There is therefore remaining capacity for wind turbine development below 50m tall in the areas with underlying capacity in the *Rolling Farmland, Grassland with Hills* and the topographically contained areas of *Dissected Plateau Moorland*.

6.3.3 Lammermuir and Moorfoot Hills: Summary of Capacity and Cumulative Development

The Lammermuir and Moorfoot Hills regional area forms most of the northern border, overlooking the Lothians and mainly drains south into the Tweed. It comprises thirteen LCTs divided into eighteen LCAs.

The two most extensive upland areas; *Dissected Plateau Moorland* LCAs of the Lammermuir and Moorfoot Hills have a low underlying capacity for smaller turbines below 50m, a medium capacity for turbines of 50-<120m and a low capacity for turbines of 120m+.

Areas with very limited capacity for any size of turbine are located on prominent hill crests and peripheral escarpments with high visibility from surrounding populated areas; including the Moorfoots escarpment overlooking Midlothian; areas overlooking the main valleys such as the Eddleston, Gala, Leader and Whiteadder Waters and the Tweed Valley. Other areas with more limited capacity include the southern part of the *Lammermuir Hills LCA,* due to the presence of the Southern Upland Way and greater visibility of south facing slopes from populated areas to the south.

The *Plateau Grassland LCA*, although an upland LCT, is less extensive and lower with more improved and enclosed farmland areas. Nevertheless, the larger scale more contained areas on this spine have capacity for larger scale wind energy development; with medium capacity for turbines of 50-<120m and low capacity for turbines over 120m. There is capacity for smaller sized turbines as individuals or small groups associated with farmsteads on the periphery of this LCA. Hills at the southern end of this area have a high prominence and intervisibility and therefore no capacity for turbines.

The areas of capacity within each LCA decrease in size as the height of turbine increases, due to the greater impacts larger sized turbines will have and the reduction in ability for topographical containment. Capacity for turbines over 120m is greatest in core areas of these LCAs, with simple large scale landscape character, minimal population, and lower intervisibility due to topographical containment. The majority of the *Moorfoot Plateau* LCA has a non – landscape designation (SSSI) that could potentially limit turbine development.

The Upland Fringe LCAs; *Poor Rough Grasslands (Leadburn), Undulating Grassland (East Gala* and *West Gala), Rolling Farmland (Westruther Platform), Upland Fringe Moorland (Greenlaw Common)* and *Grassland with Hills (Knock Hill)* all have low to medium landscape capacity for turbines below 50m, although the Middle Tweed (Leithen Water) only has capacity for turbines of below 35m.

There is limited capacity for turbines under 80m in the less prominent eastern areas of the *Rolling Farmland LCA (Westruther Platform)*, northern area of the *Grassland with Hills (Knock Hill)* and the eastern area of *Poor Rough Grasslands (Leadburn).* The western area of the *Platform Farmland (Eye Water Platform)* potentially has low capacity for turbines below 120m. Capacity within these LCAs extends to the larger turbine type for reasons including the scale and pattern of the landscape, lower visual sensitivity and/or value.

67m turbine at Bassendeanhill in the Westruther Platform LCA. This location was considered unsuitable by SBC, but subsequently granted on appeal

Areas of no capacity within upland fringe LCAs have greater intervisibility and prominence. Some specific areas have greater recreational use (e.g. Southern Upland Way), form prominent skylines and will be visible from more populated less elevated areas (e.g. Eildon Hills or Rubers Law).

The River Valley LCAs *Pastoral Upland Valley (Gala Water* and *Eddleston Water), Upland Valley with Farmland (Upper Leader), Pastoral Upland Fringe Valley (Lower Leader* and *Eye Water)* and *Wooded Upland Fringe Valley (Middle Whiteadder)* are all smaller scale more enclosed settled landscapes, with more complex landforms and landscape patterns and often with a concentration of sensitive receptors. There is no capacity for larger scale wind energy development. However, some have areas of low capacity for small groups or single smaller turbines below 50m or 35m. These LCA also have areas of no capacity for turbine development due to designations and/or areas with greater scenic and recreational value and greater visual sensitivity.

The majority of wind energy development in Scottish Borders at July 2016 is located in this regional landscape area. This includes the following principal developments as well as approximately 50 other turbines between 15 and 80m height in developments of 3 or fewer:

- In the Lammermuirs: the windfarm at Crystal Rig in the eastern Lammermuirs (46 turbines from 99m to 125m), which is in a larger regional cluster extending into the East Lothian side of the Lammermuir Plateau and Fallago Rig (48x110/125m) in the centre of the LCA;
- In the Plateau Grassland just west of the Lammermuirs, Dun Law (26x67.5m and 35x75m), Toddleburn (12x125m) and in the south Long Park (19x100m), with Dun Law adjacent to two much smaller windfarms (Pogbie and Keith Hill) located on the East Lothian side of the Lammermuirs
- In the Moorfoot Hills Carcant (3x107m) and Bowbeat (24x80m);
- In the *Platform Farmland* Quixwood (13x100/115m) and Hoprigshiels (3x115m); and
- In the *Grassland with Hills*, Black Hill (22x78m)

This has created extensive areas of *Landscape with Wind Turbines* across the Lammermuirs and extending both east into the Coastal Zone and west into the *Plateau Grassland*. The largest clusters at Crystal Rig/ Aikengall and Dun Law/ Toddleburn are in effect Wind Turbine Landscapes.

Crystal Rig (above) and Fallago Rig (below) in the Lammermuir Hills LCA: windfarms seen in opposite directions are largely contained within topographic bowls but seen together contribute to a *Landscape with Wind Turbines* across the Lammermuirs

The Lammermuirs area is now close to capacity as any further separate development between the three main windfarm clusters at Crystal Rig, Fallago Rig and Dun Law (each with separation gaps of ca. 7-8km) would be likely to create extensive areas of *Wind Turbine Landscape* in which the character of the plateaus would be dominated by wind turbines. A similar scenario exists in the *Plateau Grasslands* between the Gala and Leader Waters, where any significant development between Toddleburn and Long Park (separated by ca. 9km) may create a *Wind Turbine Landscape* unless carefully sited.

There is also the potential for a *Wind Turbine Landscape* to extend east from the Lammermuirs across the *Platform Farmland* and *Coastal Farmland* due to consents for windfarms or small turbine clusters at Aikengall II, Quixwood, Hoprigsheils, Fernylea and Neuk Farm.

Eye Water Platform and Lammermuirs LCAs: Quixwood windfarm (under construction) in the foreground with Aikengall 2 and Crystal Rig in the background and Hoprigshiels just visible to the far right

In contrast the Moorfoot Hills and surroundings are a *Landscape with Occasional Wind Turbines* or *No Wind Turbines* and there is the potential for a further significant development to be located in the eastern part of these hills, if carefully sited and designed to take advantage of topographic screening to contain visibility and visual coalescence.

In contrast to most of the Upland areas, much of the underlying capacity in the Upland Fringe LCAs remains unused, although this is much more limited than in the Uplands. The exceptions to this are the *Platform Farmland* and *Grassland with Hills* where current operational and consented developments, within and adjacent to the LCAs, limit the potential for siting further significant wind energy schemes.

There is remaining capacity in some of the river valley LCAs, but this is limited to turbines below 50m or 35m in height.

6.3.4 Central Southern Uplands Summary of Capacity and Cumulative Development.

The Central Southern Uplands is the most extensive of the regional landscape areas, covering much of the western boundary with South Lanarkshire and Dumfries & Galloway and extending eastwards into the heart of the Borders. It comprises eleven LCTs divided into twenty-two LCAs, which include the highest upland areas and the upper and mid sections of the main river systems draining eastwards.

The main Upland LCAs of *Southern Uplands with Scattered Forest* and *Southern Uplands Forest Covered* have underlying capacity for larger scales of turbine including 120m+ due to the large scale of landscape, simple landform/ pattern and extensive area. However, this is limited in the extensive *Broad Law Group* LCA for a variety of reasons, including scenic quality, as underlined by national and local landscape designations, wildness (including part of a Wild Land Area) and recreational use (including the Southern Upland Way and the highest summits in the Borders). In this LCA capacity for larger turbines is limited to the western edge, adjacent to South Lanarkshire and the extensive Clyde Windfarm, where additional turbines would appear as an extension to the existing development.

Landscape capacity for larger turbines is less constrained in the other areas including *Dun Knowe Group, Caldcleuch Head Group* and *Craick* LCAs, where there are fewer designations, lower wildness and in the latter two LCAs, greater commercial forest cover. These areas have medium capacity for turbines of 50-<120m and low capacity for turbines of 120m+.

All the Southern Upland LCAs have low or very low underlying capacity for smaller developments with turbines below 50m or 35m in lower valley areas around their fringes. Here there are smaller scale landscape references, and small turbine groupings can be associated with built development and upland edge agriculture.

The two Upland LCAs in the north of the Central Southern Uplands: *Plateau Outliers (Eddleston/ Lyne Interfluve* and *Broughton Heights),* are both limited in area and have a smaller scale than the main upland areas to the south. They are also very visible from surrounding transport routes and settlements and especially in the case of Broughton heights, parts are covered by SLA and NSA designations. Underlying capacity is limited to low for turbines below 50m, with potential for a small group of 50-<80m turbines in the centre of the *Eddleston/ Lyne Interfluve.* Sensitive designated areas have no capacity for wind energy.

Upland Fringe LCAs have varied underlying capacity for wind turbines, with a height of less than 80m. *Grassland with Hills (Eildon Hills)* and *Rolling Farmland (Minto Hills)* both have low capacity for smaller sized turbines below 50m and areas of no capacity for medium sized turbines. Areas with no capacity are due to landscape sensitivities including the distinctive landmark Eildon and Minto Hills, and the NSA.

The *Grassland with Rock Outcrops* LCAs surrounding Hawick have varied capacity between and within areas. *Midgard, Allan Water* have medium capacity for turbines below 50m and low capacity for turbines below 80m with *Allan Water* potentially able to accommodate a windfarm of up to 5 turbines. *Whitehaugh* and *Chisholme LCAs* are more restricted in capacity due to their greater visual sensitivity and landscape characteristics. *Chisholm* is the smallest of the areas and has low capacity for turbines below 35m only. All of these areas have restricted capacity on slopes overlooking Hawick, the Teviot and other river valleys.

River Valley LCAs in the Central Southern Uplands mainly have low or no capacity for turbines and no capacity for turbines of greater than 50m. This is due to their smaller scale, more varied, settled landscapes; and in most cases landscape designations.

Much of the Central Southern Uplands has no wind energy development located within it. There are currently two operational windfarms: Langhope Rig (10x100m) in the *Dun Knowe Group* LCA and Glenkerie and extension (11x105/120m; 6x100m) in the west of the *Broad Law Group*. The latter is located close to the extensive Clyde windfarm and extension in South Lanarkshire; some turbines of which are located within Scottish Borders. Two further windfarms have recently been consented following appeals: Cloich (18x115m) in the *Eddleston/ Lyne Interfluve* LCA and Windy Edge (9x125/110m) in the Caldcleugh Head Group LCA. The former in particular exceeds the guidance in Table 6.1. Other wind energy development is limited to 15-<35m turbines located on lower ground in the north and east.

Langhope Rig windfarm in Dun Knowe LCA: Further to the Barrel Law decision, another windfarm development in this area would require significant separation by distance and topography to avoid creating an area of *Wind Turbine Landscape*

Remaining capacity for larger wind energy development lies within the southern and eastern parts of the Central Southern Uplands, as the *Broad Law Group* has limited underlying capacity which has largely been occupied by Glenkerie and Clyde. There is capacity for wind turbines up to and over 120m in height in most of the *Dun Knowe Group* LCA the southeastern part of *Craik* LCA and parts of the *Caldcleugh Head* LCA. Within these general areas there are localised sensitive receptors which limit capacity for larger turbines: including the Southern Upland Way, the A7 Tourist Route, the setting of Hermitage Castle and prominent hills.

Most of the underlying capacity for turbines under 50m remains. The main constraints being the NSA, the Wild Land Area and the scale and height of many hills and ridges in the centre of these areas being more appropriate to the larger scale of turbine.

6.3.5 Cheviot Hills: Summary of Capacity and Cumulative Development

The Cheviot Hills, contiguous with the Southern Uplands in the west and rising to the south of the Tweed Lowlands forms the upland border with England. It comprises eight LCTs divided into twelve LCAs.

The largest upland area, *Wauchope/ Newcastleton* LCA, has much the greatest capacity for larger scale wind energy development due to its large scale, gently rolling landform with extensive areas of uniform forest cover and lack of settlement. The central area has capacity for all sizes of turbine and well separated windfarms of up to 15 turbines in some locations. Capacity is restricted by some sensitivities including the Carter Bar border crossing and viewpoint in the northeast, the setting of the Scotland-England border and the Liddel Water valley and Hermitage Castle in the southwest.

Wauchope/ Newcastleton LCA from the northeast. The forested hills have potential capacity to accommodate significant wind energy development if it is suitably designed and located

The *Cheviot Uplands (Cocklaw Group)* LCA has a very different landscape character, with much steeper distinctive hills and ridges dissected by steep sided valleys. This area lies almost entirely within the Cheviot Foothills SLA, borders the Northumberland National Park and hosts the final section of the Pennine Way. These sensitivities restrict the area to a low underlying capacity for turbines below 50m. The *Cheviot Foothills (Falla Group)* LCA has a similarly low capacity due partly to prominent landforms and landscape designations; but also due to its visual sensitivity, being overlooked by the Carter Bar viewpoint and surrounding uplands.

The Upland Fringe LCAs *Rolling Farmland (Oxnam* and *Lempitlaw*) and *Grasslands with Hills (Bonchester/ Dunion)* have low underlying capacity for turbines below 50m and *Oxnam* has low capacity for 50-<80m turbines as small groups in areas of larger scale simpler landform. However, capacity is constrained in some parts of the Upland Fringe LCAs for reasons which include prominent landforms (e.g. Rubers Law and Bonchester Hill) and skylines and slopes overlooking sensitive visual receptors in surrounding valleys (e.g. Bonchester Bridge and Jedburgh).

Some River Valley LCAs in the Cheviot Hills have low underlying capacity for wind energy schemes; being restricted to turbines below 35m height. This is due to smaller scale and complexity in these landscapes as well as a greater concentration of visual receptors with a number of small to medium size settlements and key transport routes. *Jed Water* and Rule Water LCAs have no underlying capacity for turbines over 15m height.

There is at July 2016 minimal wind energy development in the Cheviot Hills area, there being a total of four 15-<35m turbines. Remaining capacity is therefore similar to underlying capacity.

Liddel Water LCA, Hermitage Castle: This is one of the more sensitive parts of the LCA. The setting of this area was one of the issues highlighted in the Windy Edge windfarm appeal, and the consented windfarm is screened from the main views of the castle

6.3.6 Tweed Lowlands: Summary of Capacity and Cumulative Development

The Tweed Lowlands regional landscape area spans the Scottish Borders from the centre to the northeast and forms the lowland boundary of the English Border. It comprises six LCTs divided into eight LCAs. All are of lowland character, focused around the River Tweed and its tributaries.

All of the LCAs have underlying capacity for turbines of less than 50m and the *Gordon Platform* for turbines of 50<-80m. None of the areas has capacity for larger turbines or windfarm developments as they are settled lowland landscapes with lower height landforms, trees and many domestic scale features, as well as a higher density of visual receptors. In most cases the underlying capacity for any size of turbine is low. However, the extensive *Lowland with Drumlins (Lower Merse)* LCA has medium capacity for turbines under 35m height and low capacity for 35-<50m as the area is extensive and the rhythm of drumlin landform and occasional tree belts can in places successfully screen smaller turbines.

There are areas within all the LCAs that are unsuitable for turbine development. This includes prominent landforms and the western edges of *Black Law/Hume Crags* and *Lower Tweed* LCAs which lie in the Eildon Hills and Leaderfoot NSA.

There is fairly extensive small scale turbine development in the Tweed Lowlands, north of Kelso. The northern margin of the *Eye Water Lowlands* has several turbines of varying size between 15 and <80m, with several other 15-<35m turbines scattered across other parts of the LCA. Other turbines are scattered across the *Lower Merse, Black Law/Hume Crags* and *Gordon Platform* LCAs, but not in the extensive *Lowland Valley with Farmland* LCAs

Remaining capacity in the *Eye Water Lowlands* is limited by existing wind energy development. In particular, it will be important to avoid creation of a *Wind Turbine Landscape* on the northern escarpment area. In other areas remaining capacity is much the same as underlying capacity.

6.3.7 Coastal Zone: Summary of Capacity and Cumulative Development

The Coastal Zone is the smallest regional landscape area, and occupies the relatively limited coastal margin in the northeast of Scottish Borders. It is a varied and often spectacular landscape comprising four LCTs divided into five LCAs.

All LCAs have underlying capacity for turbines under 50m height, except the small and intimately scaled *Coastal Valley* of the *Lower Eye Water* LCA which is limited to turbines below 20m. Higher parts of the *Coastal Moorland (Coldingham Moor)* and *Coastal Farmland (Coldingham)* LCA have underlying capacity for small groups of 50-<80m turbines. There is no capacity for larger scales of wind energy development. In all cases the coastal edge of clifftops and beaches has no capacity for any size of turbine due to scenic value and sensitive receptors on the Berwickshire Coastal Path.

There is in July 2016 extensive operational and consented wind energy development of all scales within this area; the main focus of development being the *Coastal Moorland* and *Farmland* areas in which two windfarms are located: Drone Hill (22x76m) and Penmanshiel (14x100m). In addition, the *Cockburnspath* LCA has two 110m turbines at Neuk Farm and is bordered by the three 115m Hoprigshiels and two 76m Fernylea turbines and is influenced by the 19x145m Aikengall II turbines on the Monynut Edge 2km to the southwest.

Hoprigshiels and Fernylea (above) to the west, and Penmanshiel/ Drone Hill (below) to the east, seen from the same location above Ecclaw. Aikengall 1 and 2 is also visible behind Hoprigshiels in clearer conditions

Existing development has curtailed underlying capacity in most of the LCAs, particularly *Cockburnspath* and *Coldingham Moor*. However, there is still capacity for smaller turbines, either below 35m or 50m in parts of all areas.

6.4 Overall Assessment of Capacity and Cumulative Development

6.4.1 Scottish Borders Summary: Landscape Character, Sensitivity and Capacity

The regional summaries above describe a landscape that has highly varied capacity to accommodate wind energy development; from extensive windfarms to single small turbines, as well as areas which have no capacity to accommodate wind turbines without affecting key characteristics, receptors and/or designations to an undue extent.

The LCTs with the greatest underlying capacity for development are the upland areas in the northern, western and southern edges of Scottish Borders; principally the *Dissected Plateau Moorland*, *Plateau Grassland, Southern Uplands with Scattered Forest* and *Southern Uplands Forest Covered*. These landscapes are of a larger scale and have a simple form and landcover, with fewer reference features of human scale such as houses and groups of trees. There are fewer visual receptors and some areas have a lower visibility due to intervening topography. The uplands also comprise the most extensive regional landscape type in Scottish Borders. The uplands are generally suited to larger scale turbines and windfarm developments.

Differences in capacity within upland areas are dependent on differences in topography, visual sensitivity and landscape value. Some areas have a more defined hill topography, unsuited to the largest scale of blanket windfarm development, such as seen at Crystal Rig/ Aikengall. Other areas have a high landscape value due to designations, scenic qualities, higher wildness values or their popularity for recreation. Upland areas with more limited capacity include the *Plateau Outliers* and *Dissected Plateau Moorland (Western Pentlands)* LCA in the northwest which are of limited extent; *Southern Uplands with Scattered Forest (Broadlaw Group)* LCA in the west and centre and the *Cheviot Uplands and Cheviot Foothills* LCTs in the southeast which have distinctive character and high landscape value.

As described in 6.3 above, the upland landscape types have been extensively developed or are consented for development, and their capacity for further development is thus limited.

The Upland Fringe LCTs have a more limited capacity for development than Upland LCTs for various reasons. This includes a transitional character between upland, lowland and river valley landscapes; more settled nature; visibility to population centres and transport routes and generally more limited extent. Some larger scale upland fringe areas may accommodate turbines below 80m height in small groups. However, some types, such as *Grassland with Hills* and *Upland Fringe Moorland*, include landmark hills unsuited for wind energy development, such as the Eildon Hills, Rubers Law and Dirrington Laws.

The extensive River Valley LCTs are generally only suited to smaller scale wind energy development of turbines below 50m height at most, and some have no underlying capacity. This is due to their often smaller scale and more complex landscape patterns; extensive settlement and transport routes leading to potential visual sensitivities. Some river valleys are also subject to extensive landscape designations including two National Scenic Areas along the Tweed and many inventory listed designed landscapes.

The lowland landscapes around the Tweed in the north east are generally of a large scale. However, they have a lower capacity than the uplands due to their limited vertical scale, more varied and patterned landscape and presence of human scale references such as buildings, hedges and tree belts. They are also more visually sensitive, having settlements and main transport routes. They are better suited to smaller scale developments and smaller turbines below 50m, although limited areas may accommodate turbines of 50-<80m singly or in small groups.

The coastal landscapes are in some ways a microcosm of the rest of the Borders landscapes of uplands, lowlands and valleys, but much less extensive and with a strong coastal influence. This limits their capacity to small groups of turbines below 50m height in most areas, but with some areas able to accommodate small groups of turbines of 50-<80m.

The following sections summarise the underlying landscape capacity for wind energy development throughout Scottish Borders and cumulative issues associated with current (**July 2016**) levels of development. Four categories of area are discussed, with analysis of landscape resource and current capacity:

1) **Areas with Highest Underlying Landscape Capacity**: landscapes whose characteristics would most easily accommodate extensive, large scale wind energy development without unduly adverse effects.

2) **Areas with Limited Underlying Landscape Capacity**: landscapes whose characteristics would accommodate a more modest and less extensive scale of wind energy development without incurring unduly adverse effects.

3) **Areas with Little or No Underlying Landscape Capacity**: landscapes which, due to their sensitive characteristics and value, can accommodate only the smallest scale of wind energy development, or none at all.

4) **Areas of Significant Cumulative Development**: areas overlapping all of the above categories in which there is a significant level of operational or consented development relative to capacity, which limits future capacity for development

Reference should be made to the summary diagram in Figure 6.4 in which the four types of area are shown. Detailed analysis of LCTs and LCAs within these areas and guidance for proposed developments is given in Table 6.1 above.

6.4.1 Areas with Highest Underlying Capacity.

Areas in Scottish Borders with the highest underlying capacity for wind energy development are potentially able to accommodate windfarms with larger turbine sizes. This may vary from relatively small windfarms with 5-10 turbines below 80m, to extensive windfarms with scores of turbines over 120m in height. Proposals in these strategic areas

will need to respond to the landscape's pattern and scale, take account of screening and visibility and areas of higher complexity and landscape pattern. The main strategic areas are:

- Areas of *Dissected Plateau Moorland* within the Lammermuir Hills where there is a large scale undulating landform, a simple landscape pattern and topographic screening and lower visibility within and beyond the LCA. This area is designated as an SLA and is limited to the south by the Southern Upland Way long distance route.

- The core of the *Plateau Grassland* of Lauder Common, lying between the Gala and Leader Waters, using topography to help screening from the two valleys and the Lothians to the north and avoiding effects on the publicly accessed area around the B6362 between Lauder and Stow.

- An area of *Dissected Plateau Moorland* within the central Moorfoot Hills with lower intervisibility from receptors, sited away from settlements and areas of local landscape designations. Screened and topographically contained by the upland landscape, this area could be capable of accommodating a mid to large size windfarm with turbines under 120m or a smaller number of turbines over 120m. (NB. Although not a landscape designation a large area of the Moorfoot Hills has been designated as SSSI and SAC that could restrict turbine development).

- The western edge of the *Southern Uplands with Scattered Forest (Broadlaw Group)* adjacent to Clyde Windfarm in South Lanarkshire. The windfarm area could extend into this part of the Scottish Borders which has extensive forest cover, accommodating turbines of more than 120m height. Limitations include the environs of the prominent Culter Fell to the north and more sensitive parts of the Central Southern Uplands to the east where there is a Wild Land Area and several of the highest and most popular hill summits. The A701 and Upper Tweed Valley should act as a natural boundary to eastward turbine development.

- Within the southeastern area of the Central Southern Uplands there are strategic areas. The area west of the A7 extends from the Dumfries and Galloway border north and lies mainly within two LCAs: *Southern Uplands Forest Covered: (Craik)* and *Southern Uplands with Scattered Forest (Dun Knowe)*. The area east of the A7 lies mainly within the *Southern Uplands with Scattered Forest (Caldcleuch Head Group)*. These strategic areas have lower intervisibility, limited human settlement, no landscape designations and are simpler landscapes with relatively little diversity and would be capable of accommodating turbines of over 120m height in smaller or mid-sized windfarms. (NB. Although not a landscape designation these areas are partly within the Eskdalemuir EKA Seismological Array exclusion and statutory safeguard zones, that are likely to have an impact on potential for wind energy developments).

- Within the Cheviot Hills there is a strategic area in the *Southern Uplands Forest Covered (Wauchope/Newcastleton) LCA*. This area has large scale gently rolling landform, uniform forest cover and a low population. Areas benefit from topographic screening and would be capable of accommodating turbines of over 120m height in smaller or mid-sized windfarms. Limitations include views from more sensitive locations on and around the Scotland-England Border and some more prominent landforms.

6.4.2 Areas with Limited Underlying Capacity

Areas with limited underlying capacity could accommodate small groupings of carefully located turbines under 80m or, in some cases, under 50m height. In some locations this may amount to a small scale windfarm, but in others only single or lower height turbines could be accommodated. The larger developments would best be accommodated in the largest scale areas of Upland Fringe or Lowland areas with simple landform and lower population. The smaller developments would in most cases be better accommodated in enclosed farmland, industrial/ business areas or other built development and in many cases be limited to turbines under 50m height. Areas with limited underlying capacity include:

- Areas of the Midland Valley Upland and Upland Fringe landscape character types. Development should respond positively to the existing scale, settlement patterns and complexities found within the landscape.

- The lower elevations of the *Middle Tweed Valley* landscape but only within the less sensitive areas with lower intervisibility, avoiding prominent spurs.

- The less prominent, but not peripheral, southern slopes of the Moorfoot Hills and peripheral areas of Lauder Common and the Lammermuir Hills. Siting should avoid the most exposed peripheral areas and escarpments due their prominence and the visual or landscape sensitivity of their surroundings.

- The transitional area between the Upland Fringe of the Lammermuir Hills and the Tweed Lowlands. This area has limited capacity in undesignated undulating farmland landscapes with sparsely distributed smaller settlements, individual farmsteads and a lower intervisibility.

- The undulating landscape of the Merse area also has capacity for smaller turbines in locations with lower intervisibility.

- Areas within the Cheviot Hills, Upland Fringe and River Valleys: within the more contained areas screened from the Northumberland National Park and key viewpoints and within less complex open areas with fewer settlements and lower intervisibility.

- The outlying areas, but not the more prominent slopes of the Southern Uplands; Uplands, Upland Fringe and River Valley landscapes. There is some capacity here due to the lower intervisibility and larger scale less complex landscapes/ landforms and simpler patterns in the landscape.

- River Valley landscapes of the Gala Water, Leader Water and Eye Water. The limited capacity within these landscapes is due to the smaller scale landscape character, settlement and transport patterns and the more complex landscape patterns and processes within them.

When assessing the acceptability of large and very large turbine proposals in neighbouring landscape character areas, proximity to these sensitive areas should be taken into account.

Gala Water LCA. There is limited scope for appropriately sited turbines up to 50m tall in this upland valley

6.4.3 Areas with Very Limited or No Underlying Capacity

Significant areas of Scottish Borders have a high sensitivity and/or value and thus very limited or no capacity for wind turbine developments. These areas can only exceptionally accommodate well separated single turbines below 50m or 35m. Some areas are not suitable for wind energy development. These areas are:

- The upland areas of the Pentland Hills in the Midland Valley area. The skyline and escarpment of these hills is highly prominent to a large population to the north and the area has a high recreational value.
- A large area of the *Upper Tweed Valley* and prominent escarpment slopes of the Central Southern Uplands, *Broughton Heights* and *Moorfoot Hills* due to national and local landscape designations, settlement pattern and a higher degree of visibility from sensitive receptors.
- The core of the Central Southern Uplands in the *Broadlaw Group* LCA, which has the highest summits, most dramatic scenery and highest wildness value within Scottish Borders and is consequently a scenic and recreational asset.
- River valleys within the Southern Uplands due to settlement patterns, smaller scale landscapes, local and national landscape designations. Intervisibility from the valleys to the upland areas would also be higher.
- Areas within the Cheviot Hills. This is due to various landscape character, visual and landscape value reasons. This includes a steep and complex landform, proximity to the Northumberland National Park and the summit of the Cheviot, the Pennine Way, local landscape designations and important recreational usage including tourism and the setting of the panoramic Carter Bar viewpoint on the England – Scotland border.
- A large central area of the *Middle* and *Lower Tweed Valley*, including upland fringe and Tweed Lowland landscapes. This is due to local and national landscape designations, a substantial population and settlement pattern within the lowlands and river valleys as well as prominence, smaller scale landscapes with more complex patterns and processes and a higher degree of intervisibility within this area of the Scottish Borders.
- The southern fringes of the Lammermuir Hills consisting of Upland, River Valley and Upland Fringe landscapes. This is due to local landscape designations, long distance recreational routes and a higher degree of intervisibility.
- A number of prominent landmark hills in Upland and Upland Fringe areas including the Eildon Hills, the Dirrington Laws, Rubers Law, the Minto Hills and Maiden Paps. These characteristic and widely visible landforms fall mostly within designated landscapes and cannot accommodate wind turbines on their slopes or immediate surroundings without undue effects.
- The coastal edge of the Coastal Zone also has no capacity for turbine development due to scenic value, visual sensitivity and local landscape designations.

It is recommended that these landscape areas remain sparsely developed or undeveloped to protect their character and to provide gaps between clusters of development.

Rubers Law is one of the most prominent landforms in the Borders and is not suitable for wind turbine development

6.4.3 Areas of Significant Cumulative Development

SPP recommends that planning authorities are clear about likely cumulative impacts arising from the considerations set out at paragraph 169, which may limit the capacity for further development. One of the development management considerations at paragraph 169 is cumulative landscape and visual impacts.

Figure 6.4 identifies areas where, in **July 2016**, there is significant cumulative operational and consented wind turbine development. The cumulative areas overlap with landscapes

of varied underlying capacity for development, and simply reflect that there is significant cumulative development relative to this underlying capacity. Four *Areas of Significant Cumulative Development* are identified. These areas do not in themselves specify capacity or a limit to development; however, a broader area of potential constraint is indicated by wider *Areas Where Cumulative Impacts Limit Development* encompassing the cumulative areas and their surroundings.

Table 6.2 below describes the areas in more detail and key criteria for locating further development and assessing cumulative effects. Capacity and guidance is also detailed for the coincident LCTs and LCAs in Table 6.1. This should be taken into consideration when assessing residual capacity for further wind energy development within the areas shown, or in adjacent landscapes.

The boundaries shown in Figure 6.4 are indicative. Development proposals require to address detailed criteria in Table 6.2 to ensure that landscape capacity within, or adjacent to, these areas is not exceeded as a result of adding further to existing and consented cumulative development.

The *Areas of Significant Cumulative Development* detailed in Figure 6.4 and Table 6.2 are based on the most up to date information on operational and consented schemes available at a time prior to its completion (i.e. July 2016). However, the database has changed in the intervening period between July and this November publication, with the addition of newly consented schemes including small scale and single turbine proposals as well as larger wind farms. The baseline will continue to change in future. Cumulative effects are therefore likely to extend, or occur outwith the areas shown in the report, as new developments come forward. It is therefore possible that in future other areas not currently detailed in Figure 6.4 and Table 6.2 could meet the definition of *Areas of Significant Cumulative Development.*

The capacity study therefore represents a 'snapshot' in time at July 2016. As is the case with all cumulative assessments, proposed schemes will require to be assessed on the basis of available up-to-date information on consented and operational schemes at the time of application.

Elsewhere there are much more limited extents of development and the guidance in Table 6.2 is intended to steer future development to an acceptable level.

Table 6.2: Description and Guidance for Areas of Significant Cumulative Development: (see Figure 6.4 for locations)

1. Coastal Zone, Lammermuir Hills and Lauder Common	
Description	**Development Situation and Key Objectives**
This area lies in the Lammermuir & Moorfoot Hills regional landscape area, on the northern boundary of Scottish Borders extending into East Lothian and Midlothian. It includes the following LCAs and operational/ consented wind energy developments: • The Coastal Zone area of *Coastal Farmland (Cockburnspath)* southwest of Cockburnspath and the northern edge of the *Platform Farmland (Eye Water Platform)*; within or close to which lies the small schemes of Neuk Farm, Hoprigshiels, and Fernylea; • The Upland landscape of *Dissected Plateau Moorlands (Lammermuir Hills)* extending across the border into East Lothian and including the extensive developments at Aikengall/ Crystal Rig and Fallago Rig. • The northern edges of the River Valley Landscapes of *Wooded Upland Fringe Valley (Middle Whiteadder)* and *Upland Valley with Farmland (Upper Whiteadder)*. • The northern end of the Upland Landscape of *Plateau Grassland (Lauder Common)* extending across the boundary into East Lothian and including the extensive Dun Law/ Toddleburn cluster.	In July 2016 there are three main wind energy clusters and a number of smaller developments of 2-3 turbines. This has created a *Landscape with Windfarms* over the area as a whole, with Windfarm Landscape around each of the largest three clusters. The key objectives governing the area are: • Retaining sufficient spacing between individual windfarms and turbines so as not to exceed a *Landscape with Wind Turbines* typology outside the main *Wind Turbine Landscape* clusters of Crystal Rig/ Aikengall, Fallago Rig and Dun Law/Toddleburn; • To prevent visual coalescence with cumulative areas 2 and 3; • To prevent a proliferation of turbines visible from the A1 and East Coast Mainline Railway corridor; • To prevent the overdevelopment of the Upland landscape, *Plateau Grassland (Lauder Common) LCA* and to avoid this landscape from developing into a *Wind Turbine Landscape*; • To prevent the close proximity of larger turbines to settlements and individual dwellings in the surrounding Upland Fringe, Coastal Zone and River Valley areas; • To support an organised pattern of development within the Upland areas, promoting development in concentrated clusters whilst maintaining sufficient spacing between neighbouring clusters of developments; • To minimise visibility to sensitive receptors in surrounding areas; including to the north the more visually prominent areas of the northern escarpment of the Lammermuirs visible from population centres of Edinburgh and the Lothians and to the south from the Southern Upland Way.
2. Coldingham Moor	
Description	**Development Situation and Key Objectives**

This area lies largely within the Coastal Zone regional area. It includes the following LCAs and operational/ consented wind energy developments: • A small section of the A1 and East Coast Mainline Railway corridor, River Valley landscape *Pastoral Upland Fringe Valley (Eye Water);* • The Coastal Zone area of *Coastal Moorland (Coldingham Moor)* and *Coastal Farmland (Coldingham)* between the settlements of Cockburnspath and Coldingham; This area accommodates two adjacent windfarms; Drone Hill and Penmanshiel, as well as three other turbines adjacent to this cluster.	In July 2016 there is one wind energy cluster comprising two windfarms and closely associated smaller developments of 1 and 2 turbines. This has created a *Landscape with Windfarms* within a wider area of *Landscape with Wind Turbines*. The key objectives governing the area are: • Retaining sufficient spacing between individual windfarms and turbines to avoid significantly expanding the areas of *Wind Turbine Landscape* and maintain the *Landscape with Occasional Wind Turbines* typology over the wider area • To minimise visibility of turbines from the scenic coastline edge of the Berwickshire Coast SLA • To prevent visual coalescence with cumulative areas 1 and 3 • To prevent a proliferation of turbines visible from the A1 and East Coast Mainline Railway corridor • To prevent the unacceptable proximity of larger turbines to settlements and individual dwellings including Coldingham and Cockburnspath • To minimise visibility from sensitive receptors including the Southern Upland Way and Berwickshire Coastal Path
3. Eye Water Platform	
Description This area lies largely within the Upland Fringe of the Lammermuir & Moorfoot Hills regional landscape area. It includes the following LCAs and operational/ consented wind energy developments: • The Upland Fringe landscapes of the *Platform Farmland (Eye Water Platform)* • The southwestern edge of the A1 and East Coast Mainline Railway corridor, River Valley landscape *Pastoral Upland Fringe Valley (Eye Water)* • The northern edge of the River Valley Landscape of the *Wooded Upland Fringe Valley (Middle Whiteadder)* • The northwestern edge of the Lowland Landscape of *Rolling Lowland Margin (Eye Water Lowlands).*	In July 2016 there is one windfarm and several smaller wind energy schemes within a *Landscape with Windfarms*. The key objectives governing the area are: • Retaining sufficient spacing between individual windfarms and turbines to maintain the *Landscape with Wind Turbines* and *Landscape with Occasional Wind Turbine* typology and avoid creating areas of *Wind Turbine Landscape*; • To prevent visual coalescence with cumulative areas 1 and 2 • To prevent a proliferation of turbines visible from the A1 and East Coast Mainline Railway corridor • To prevent the unacceptable proximity of larger turbines to settlements and individual dwellings • Retaining sufficient spacing between windfarm developments and the Southern Upland Way.
4. Western Central Southern Uplands	
Description This area lies within the Central Southern Uplands, on the western boundary of Scottish Borders, extending well into South Lanarkshire. It includes the following LCAs and operational/ consented wind energy developments: • The *Southern Uplands with Scattered Forest (Broadlaw Group)* LCA west of the Upland Valley with Pastoral Floor (Upper Tweed Valley) and the A701 and South of Culter Fell, extending well into the Southern Uplands of South Lanarkshire • The area to the west is dominated by the more than 200 turbines of Clyde windfarm and extension, which is primarily in South Lanarkshire; with Glenkerie and extension 5km to the northeast within Scottish Borders	**Development Situation and Key Objectives** At July 2016 the western part of this area is a *Wind Turbine Landscape*, with a *Landscape with Wind Turbines* extending northeastwards. It is surrounded by an extensive area of *Landscape with No Wind Turbines* extending across the *Broadlaw Group* and *Upper* and *Middle Tweed Valley* LCAs. The key objectives governing the area are: • Promote the contained development of a wind farm cluster, using the strong landscape feature of the Tweed Valley and A701 as a barrier to limit development spreading east across the Southern Uplands • To maintain the Broadlaw Group LCA to the east of the Tweed Valley as a *Landscape with No Wind Turbines,* creating a gap between wind energy clusters • To prevent visual coalescence of any other wind energy schemes with Clyde windfarm • To prevent unacceptable proximity of larger turbines to visually sensitive locations including the Southern Upland Way, the Devil's Beeftub viewpoint and popular hill summits including Culter Fell, Hart Fell and Broad Law • To prevent adverse effects on the Talla-Hart Fell Wild Land Area

6.5 Capacity for Further Development

This assessment has demonstrated that the landscape of Scottish Borders has the underlying capacity to accommodate a significant amount of wind energy development; of appropriate types and extents according to the varied characteristics of the landscapes and the visual sensitivities across the region.

At current levels of development there is remaining capacity for further appropriate wind energy development in much of the Scottish Borders. However, cumulative development limits this in some areas.

The following section highlights the areas with remaining capacity. However, Tables 6.1 and 6.2 should be consulted for detailed guidance.

6.5.1 Areas with Most Remaining Capacity

The greatest scope for further development lies within Upland LCTs in the north, west and south that have been identified firstly as having underlying capacity for larger turbines and windfarms and secondly cover significant areas:

- The core of the *Moorfoot Hills* has the landscape capacity to accommodate a windfarm with turbines of 80-<120m or a smaller number of turbines at 120m+.
- Areas of *Craik, Dun Knowe, Caldcleuch Head* and *Wauchope/ Newcastleton* could accommodate windfarms with larger turbines including 120m+

6.5.2 Areas with Limited Remaining Capacity

Areas with limited remaining capacity include areas with underlying capacity for larger turbines that are limited by cumulative development and windfarms, and areas with underlying capacity for smaller windfarms and/or smaller types of turbine development that remain undeveloped:

- The *Lammermuir Hills* could accommodate additional larger turbines but only as extensions to existing windfarms
- *Lauder Common* could accommodate additional larger turbines as a carefully sited additional development or possibly by extending an existing windfarm
- The *Broadlaw Group* west of the A701 could accommodate further carefully designed and sited extension to Clyde windfarm
- Some of the Upland Fringe LCTs and smaller Upland LCTs have areas of the scale and simplicity of landscape pattern to accommodate turbines below 80m and most 80m, although some in the northeast are close to cumulative capacity.
- Some of the larger scale River Valley LCTs can accommodate turbines of below 50m and none of these has reached capacity
- Most of the Lowland LCTs are of a large enough scale and simple pattern to accommodate turbines below 50m, or in some cases 80m, although some areas in the northeast are close to cumulative capacity.
- Limited areas of the Coastal LCTs have remaining capacity for turbines below 50m or 35m.

There may be limited scope for extension of larger operational windfarms in Upland LCTs as an alternative to locating new smaller windfarms in lowland or upland fringe areas. However, the siting of additional turbines must avoid physical or visual coalescence with windfarms and concentrations of turbines in neighbouring landscapes, or the crossing of boundaries blurring the distinction between landscape types.

6.5.3 Other Landscape Areas and Urban Areas

Within many of the remaining LCAs of Scottish Borders there is very limited remaining capacity for small wind energy development below 35m or occasionally 50m. Many parts of these areas have effectively no capacity, for reasons including landscape character, visual sensitivity and/or landscape value. These areas include:

- The two nationally designated landscapes
- Areas with a high scenic quality and/or wildness value that are also popular with visitors including much of the *Broad Law* LCA
- Distinctive landforms and their settings such as the Eildon Hills, Rubers Law or the Dirrington Laws
- The highest hilltop viewpoints such as Broad Law, Culter Fell and Hart Fell
- Inventory listed designed landscapes
- Narrow, steep, small scale river valleys
- Locations critical to the setting of settlements

Whilst it is recognised that some parts of urban areas may be able to accommodate wind turbines, and indeed do, this study does not assess the capacity of urban areas. Consequently urban areas have not been included in the maps in 6.1 - 6.4 and the guidance in Table 6.1. Factors specific to townscape and urban planning are likely to guide location; however the effects of larger turbines on adjacent rural LCTs and cumulative areas should be taken into account.

6.6 Existing Developments: Extensions and Repowering

SPP para 170 states that *'Areas identified for wind farms should be suitable for use in perpetuity'* and refers in paras 161 and 174 to repowering of existing sites and extensions to existing windfarms. Implicit in this is the need to ensure at the outset that sites are

suitable for development and that windfarms are sited and designed to minimise impacts and to protect amenity. Para 161 states:

'Development plans should also set out the criteria that will be considered in deciding all applications for wind farms of different scales – including extensions and re-powering – taking account of the considerations set out at paragraph 169'.

The study has taken into consideration the likelihood that existing schemes in Scottish Borders may in future be extended, or in the longer term repowered (see 6.2.4 and 5 above and remarks in relation to specific schemes made in Table 6.1).

The guidance addresses the landscape, visual and cumulative criteria listed in para 169 of SPP. It should be applied as equally to extensions to, and repowering of, existing windfarms as it is to newly proposed wind energy developments. However, some specific considerations relating to the nature of extensions or repowering will apply:

- The design of extensions and repowering schemes should take into account the scale and context of existing wind energy development in the surrounding area that will be added to, replaced and/or operational during the lifetime of the proposed extension/ repowering scheme.
- In the case of extensions, the location and design of extensions relative to the original scheme is critical. This should take account of turbine size and layout, remaining capacity for extension without unduly extending effects, and the remaining lifespan of the original scheme.
- Particularly in the case of repowering, opportunities for mitigating adverse effects of earlier, less well designed, schemes should be grasped. This may include more harmonious turbine arrangements or reducing the developed area as more energy can now be delivered by fewer, larger turbines.

The nature of future proposals will be affected by the wider changes to onshore wind energy driven by advances to technology and changing economic circumstances. Currently the main anticipated change is the greater size of, and spacing between, modern commercial turbines. In essence, applications for repowering should be considered *de novo*.

6.7 Guidance for Single/Small Turbine Developments

This cumulative assessment and capacity study has detailed the current distribution of all sizes of wind turbines of 15m or above when determining capacity for further development. This is because the smallest turbines (less than 15m), being of a similar height to built structures and trees found commonly throughout the landscape, do not have the same eye-catching prominence and extensive visibility of larger turbines. They do not therefore have the same issues of wide scale cumulative effects across extensive landscape areas.

The issues relating to design and siting of small turbines concern mainly their localised effects on the area in which they are sited rather than wider cumulative effects on landscape character. Small wind turbines should be judged on their own merits, assessed against the criteria that apply to most other domestic or farm scale built structures. Landscape and visual considerations may include the following:

- Effects on designations including landscape quality designations, Scheduled Ancient Monuments, listed buildings, conservation areas;
- Location in relation to scenic viewpoints;
- Relationship to skylines and seascapes;
- Relationship to other structures and buildings;
- Location in relation to approaches to and setting of settlements;
- Proximity to residential properties;
- Localised cumulative effects including potential for visual confusion or cluttering areas with significant numbers of small turbines and/or close proximity to other similar larger structures including taller wind turbines and electricity pylons.

Larger wind turbines are more often than not seen against the sky. The approach to colouring has been to adopt a neutral light grey colour relating to the sky colour most likely to be encountered as a backdrop. Small wind turbines are often fully or partially backclothed against landforms and/or trees, giving a closer relationship to the ground than the larger structures. It may therefore be appropriate to consider colouring small wind turbines a darker grey, green or brown to reduce their visibility when seen against backdrops, or close to buildings.

Further guidance on the siting of smaller wind turbines is given by SNH[13] .

[13] SNH (March 2012) *Siting and Design of Small Scale Wind Turbines of between 15 and 50 metres in height*

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October 2016 8558_GIS_128

Legend

- Regional Landscape Areas
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- Landscape Character Areas

Landscape Capacity (15 to <35m)

- High
- Medium
- Low
- None

Note:
The shaded areas show an indicative level of capacity and its extent within and across different landscape character areas. These areas should not be interpreted as a hard boundary and reference should be made to the detailed capacity assessment and locational guidance given in Table 6.1.

Code	Landscape Character Types
1	Dissected Plateau Moorland
2	Plateau Grassland
3	Plateau Outliers
4	Southern Uplands with Scattered Forest
5	Southern Uplands Forest Covered
6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.1a

15 - <35m Turbines Underlying Landscape Capacity

N

0 5 10 20 Km

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October 2016 8558_GIS_129

Legend

- Regional Landscape Areas
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- Landscape Character Areas

Landscape Capacity (35 to <50m)

- High
- Medium
- Low
- None

Note:
The shaded areas show an indicative level of capacity and its extent within and across different landscape character areas. These areas should not be interpreted as a hard boundary and reference should be made to the detailed capacity assessment and locational guidance given in Table 6.1.

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8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.1b

35 - <50m Turbines Underlying Landscape Capacity

N

0 5 10 20 Km

Scottish Borders Updated Wind Energy Capacity Study

October 2016 8558_GIS_130

Legend

- Regional Landscape Areas
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- Landscape Character Areas

Underlying Landscape Capacity (50 to <80m)

- High
- Medium
- Low
- None

Note:
The shaded areas show an indicative level of capacity and its extent within and across different landscape character areas. These areas should not be interpreted as a hard boundary and reference should be made to the detailed capacity assessment and locational guidance given in Table 6.1.

(i) Midland Valley
(ii) Lammermuir & Moorfoot Hills
(iii) Central Southern Uplands
(iv) Cheviot Hills
(v) Tweed Lowlands
(vi) Coastal Zone

Code	Landscape Character Types
1	Dissected Plateau Moorland
2	Plateau Grassland
3	Plateau Outliers
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5	Southern Uplands Forest Covered
6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
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11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.1c

50 - <80m Turbines
Underlying Landscape Capacity

N
0 5 10 20 Km

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Legend

- Regional Landscape Areas
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- Landscape Character Areas

Underlying Landscape Capacity (80 to <120m)

- High
- Medium
- Low
- None

Note:
The shaded areas show an indicative level of capacity and its extent within and across different landscape character areas. These areas should not be interpreted as a hard boundary and reference should be made to the detailed capacity assessment and locational guidance given in Table 6.1.

(i) Midland Valley
(ii) Lammermuir & Moorfoot Hills
(iii) Central Southern Uplands
(iv) Cheviot Hills
(v) Tweed Lowlands
(vi) Coastal Zone

Code	Landscape Character Types
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2	Plateau Grassland
3	Plateau Outliers
4	Southern Uplands with Scattered Forest
5	Southern Uplands Forest Covered
6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.1d

80 - <120m Turbines
Underlying Landscape Capacity

N 0 5 10 20 Km

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Legend

- Regional Landscape Areas
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- Landscape Character Areas

Underlying Landscape Capacity (120m+)

- High
- Medium
- Low
- None

Note:
The shaded areas show an indicative level of capacity and its extent within and across different landscape character areas. These areas should not be interpreted as a hard boundary and reference should be made to the detailed capacity assessment and locational guidance given in Table 6.1.

Code	Landscape Character Types
1	Dissected Plateau Moorland
2	Plateau Grassland
3	Plateau Outliers
4	Southern Uplands with Scattered Forest
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6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.1e

120m+ Turbines
Underlying Landscape Capacity

N

0 5 10 20 Km

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Legend

Windfarm: Status, Height Category

- Operational / Consented, Cat 1: 15 to <35m
- Operational / Consented, Cat 2: 35 to <50m
- Operational / Consented, Cat 3: 50 to <80m
- Operational / Consented, Cat 4: 80 to <120m
- Operational / Consented, Cat 5: 120m+
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- SNH Landscape Character Areas

Typology

- Wind Turbine Landscape
- Landscape with Wind Turbines
- Landscape with Occasional Wind Turbines
- Landscape with No Wind Turbines

Code	Landscape Character Types
1	Dissected Plateau Moorland
2	Plateau Grassland
3	Plateau Outliers
4	Southern Uplands with Scattered Forest
5	Southern Uplands Forest Covered
6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
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21	Coastal Moorland
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23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.2

Current Wind Turbine Landscape Typology: Operational & Consented Windfarms

N

0 5 10 20 Km

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Windfarm: Status, Height Category

- Operational / Consented, Cat 1: 15 to <35m
- Operational / Consented, Cat 2: 35 to <50m
- Operational / Consented, Cat 3: 50 to <80m
- Operational / Consented, Cat 4: 80 to <120m
- Operational / Consented, Cat 5: 120m+
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- SNH Landscape Character Areas

Typology

- Wind Turbine Landscape
- Landscape with Wind Turbines
- Landscape with Occasional Wind Turbines
- Landscape with No Wind Turbines

Code	Landscape Character Types
1	Dissected Plateau Moorland
2	Plateau Grassland
3	Plateau Outliers
4	Southern Uplands with Scattered Forest
5	Southern Uplands Forest Covered
6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.3

Wind Turbine Landscape Typology: Proposed Maximum Development Capacity

N

0 4 8 16 24 Km

Scottish Borders Updated Wind Energy Capacity Study

May 2016 8558_GIS_135

Legend

- Regional Landscape Areas
- SBC Local Authority Boundary
- Local Authority Boundary 15km Buffer
- Other Local Authority Boundaries
- **Areas of Significant Cumulative Development:**
  1. Coastal Zone, Lammermuir Hills and Lauder Common
  2. Coldingham Moor
  3. Eye Water Platform
  4. Western Central Southern Uplands

  (see Table 6.2 for further details)
- Landscape Character Areas
- Areas Where Cumulative Impacts Limit Development

Capacity

- Areas with Highest Capacity
- Areas with Limited Capacity
- Areas with Very Limited Capacity or No Capacity

Note:
Areas shown are indicative and reference should be made to the detailed guidance in Table 6.1 and discussion in Section 6.4.

Code	Landscape Character Types
1	Dissected Plateau Moorland
2	Plateau Grassland
3	Plateau Outliers
4	Southern Uplands with Scattered Forest
5	Southern Uplands Forest Covered
6	Cheviot Uplands
7	Cheviot Foothills
8	Rolling Farmland
9	Platform Farmland
10	Grassland with Rock Outcrops
11	Grassland with Hills
12	Undulating Grassland
13	Poor Rough Grassland
14	Upland Fringe Moorland
15	Lowland with Drumlins
16	Rolling Lowland Margin
17	Lowland Margin Platform
18	Lowland Margin with Hills
19	Coastal Farmland
20	Coastal Pasture
21	Coastal Moorland
22	Upland Valley with Pastoral Floor
23	Pastoral Upland Valley
24	Upland Valley with Farmland
25	Upland Valley with Woodland
26	Pastoral Upland Fringe Valley
27	Upland Fringe Valley with Settlements
28	Wooded Upland Fringe Valley
29	Lowland Valley with Farmland
30	Coastal Valley
LOCH	Inland Loch
LOCH_ISLD	Loch Island

Figure 6.4
Wind Turbine Development Opportunities and Constraints

N

0 5 10 20 Km

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