

Strategic Landscape Capacity Assessment for Wind Energy in Aberdeenshire



March 2014

7933 ABS 141

Legend

-  Study Area
-  Study Area 30km Buffer
-  Scottish Local Authority Boundaries
-  Landscape Character Type / Area Boundary (see Table 3.1 for list)

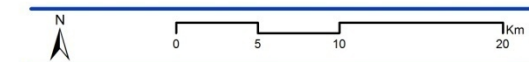
Capacity

-  High Capacity
-  Medium Capacity
-  Low Capacity
-  No Capacity



Landscape Character Types and Areas	
1. Agricultural Heartland	
(i)	Knockhill and Aberchirder
(ii)	Agricultural Heartland
(iii)	Wooded Estates Around Old Deer
(iv)	Upland Ridges South of the Deveron
(v)	Northern Rolling Lowlands
(vi)	Ythan Strath Farmland
(vii)	Insch Basin
(viii)	Formartine Lowlands
(ix)	Central Wooded Estates
(x)	Howe of Alford
(xi)	Cromar Farmlands
(xii)	Howe of Cromar
(xiii)	Kincardine Plateau
(xiv)	Garvock and Glenbervie
(xv)	Howe of the Means
7. Coastal Farmland	
(i)	Eastern Coastal Agricultural Plain
(ii)	Western Coastal Farmland
(iii)	North East Coastal Farmland
(iv)	Sandstone Ridges and Valleys South of Troup
(v)	Coastal Farmland East of Macduff
9. Coastal Strip	
(i)	Kincardine Cliffs
(ii)	Formartine Links and Dunes
(iii)	Kincardine Links
11. Farmed Moorland Edge	
(i)	Lumsden Valley
(ii)	The Cromar Uplands
(iii)	Daugh of Cairnborrow
22. Moorland Plateaux	
(i)	Grampian Outliers
(ii)	The Mounth
(iii)	The North-eastern Hill Ranges
24. River Valleys	
(i)	Deveron and Upper Ythan Valleys
25. Straths and Valleys	
(i)	Deveron and Bogie Straths
(ii)	Deeside
(iii)	Donside
(iv)	Upper Deeside Estates
(v)	Muir of Dinnet
26. The Coast	
(i)	Cliffs of the North and South East Coasts
(ii)	Dunes and Beaches from Fraserburgh to Peterhead

Figure 6.1b (v)
Remaining Landscape Capacity
Very Large Turbines
(125m+ Height)



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown Copyright 2014. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. AL100017966

- The area of *Agricultural Heartland* centred on Fyvie and extending between Ellon and Huntly;
- A concentration of turbines south-west of Banff and south-east from Macduff in the *Coastal Farmland* landscape character types there;
- A concentration of turbines south of Stonehaven.

There are other areas in the lowlands and the moorlands where concentrations of turbines are leading to significant cumulative change.

In the 30km buffer area beyond Aberdeen there are significant numbers of turbines. Some of these developments (such as the European Offshore Wind Deployment Centre (EOWDC) Site) have an influence on the landscape character of Aberdeenshire.

6.3.3 Proposed Wind Turbines

There are 314 further proposed turbines within Aberdeenshire which are predominantly in groups of three or fewer (96.5%).

6.4 Landscape Capacity and Cumulative Landscape Effects

6.4.1 Summary of Capacity and Cumulative Development in the Coastal Landscapes

(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 and summarised in the sections below).

The coastal areas in Aberdeenshire comprise two LCTs *Coast* and *Coastal Strip*, within these are five LCAs: *Cliffs of the North and South-East Coasts*; *Dunes and Beaches from Fraserburgh to Peterhead*; *Kincardine Cliffs*; *Formartine Links and Dunes* and *Kincardine Links*.

The assessment of the coastal LCAs has determined that this area of Aberdeenshire has a low or no underlying capacity for wind turbine development above 15m in height. This is primarily due to the area's high landscape value, limited extent and sensitivity. Whole stretches of it are designated either as SSSI, SAC, SPA sites or RSPB reserves; it also forms the setting to historic and picturesque sites such as SAMs, historic castles (at Slains, Dunnottar) together with Conservation Areas around traditional coastal villages such as Catterline and Pennan. It is also an important recreational destination, with coastal footpaths, beaches, golf courses and the National Cycle Network running through it. These areas are also very limited in extent and therefore rare in the north-east of Scotland

Coastal LCAs are also sensitive landscapes with a high quality. Although they are open, windswept and of medium to large scale which would suggest suitability for wind energy development, the coastal location renders them visually sensitive, as tall objects are seen starkly contrasted against the sea. This greatly limits the extent and scale of potential development without leading to very significant effects.

It is recommended that no turbines over 15m in height are located in the more complex, rocky coastal areas of 26(i) *Cliffs of the North and South-East Coasts* and 9(i) *Kincardine Cliffs*. Within the area 26(i) *Dunes and Beaches from Fraserburgh to Peterhead* and 9(iii) *Kincardine Links and Dunes* there would be only limited opportunities for smaller scale developments, with small/medium turbines under 30m making a *Coast with Occasional Wind Turbines*.

Given the potential dominance on the landscapes of the coastal LCAs and the prevailing landform along the coast of Aberdeen it is recommended that within the adjoining landscape character areas, mainly *Coastal Farmland LCT* in the north and *Agricultural Heartland LCTs* in the south, large and medium/large turbines should be sited away from the boundary with the coast.

Restricting development in coastal areas reflects the high sensitivity and value of all the LCAs and their particular contribution to the landscape character of Aberdeenshire as a whole.

Currently there are nineteen operational or consented developments within the coastal areas of Aberdeenshire. Some of the turbines (over 30m) within the areas together with the large turbines in neighbouring LCAs (at *Boyndie (9)*, *St Fergus Moss (9)*, *St John's (9)*) are within 2km influence and dominate sections of the coast resulting in a *Wind Turbine Coast* or *Coast with Wind Turbines* in places. In particular the European Offshore Wind Deployment Centre (EOWDC) wind farm site is for 11 (very large) 195m high turbines 2.4km offshore from the 9(ii) *Formartine Links and Dunes*. This dominates this section of low capacity coast and it exceeds the capacity of this area.

Most of the proposed wind turbines located in or near the coastal landscapes would lead to a significant change on the current situation. In particular the proposed large and medium turbines at 26(i) *Cliffs of the North and South-East Coasts* would lead to a *Wind Turbine Landscape* in the surrounding area. Within the area 26(i) *Dunes and Beaches from Fraserburgh to Peterhead* the proposed large and medium/large turbines would exceed the underlying capacity further making a *Wind Turbine Landscape*. In addition proposals for larger turbines along the boundary within the adjoining LCTs could also lead to further changes on the current situation.

6.4.2 Summary of Capacity and Cumulative Development in the Coastal Farmland

The *Coastal Farmland LCT* area comprises five LCA's; *Eastern Coastal Agricultural Plain*; *Western Coastal Farmland*; *North-East Coastal Farmland*; *Sandstone Ridges and Valleys South of Troup* and *Coastal Farmland East of Macduff*.

Assessment has determined that parts of the *Coastal Farmland* landscape of Aberdeenshire have the greatest underlying capacity for wind turbine development, although this varies across character types. Overall there is a medium capacity for small groups of 80m+ turbines. However the locally rare, higher value and sensitivity at *Sandstone Ridges and Valleys South of Troup* mean that this area has no capacity for turbines greater than 15m and associated with built development.

The landscape of the rest of the *Coastal Farmland LCTs* is generally of a medium to large scale, undulating landform, with few trees and pattern of very large arable fields. It has

visual sensitivities due to settlements along the coast (including a number of towns and villages) and transport routes (including the A90 trunk route), together with openness of much of the landscape. Nevertheless, this is a highly productive working agricultural landscape. There are significant areas of sufficient scale and simplicity in landform and landcover pattern to accommodate some degree of wind turbine development.

There are also a number of distinctive hills, although low in height they are valuable landmarks when viewed from the surrounding lower landscapes. Given the amplitude of their slopes is often small, and their relative visibility, tall turbines (over 30m) would be out of scale with the hill landform and groups of turbines would overwhelm the distinctively shaped and separated landmarks.

It is recommended that in the areas of *Coastal Farmland* adjacent to more sensitive LCAs such as *Coastal* and *Straths and River Valleys*, large and medium/large turbines should be sited away from the boundaries to reduce their potential dominance.

The overall character of *Eastern Coastal Agricultural Plain; Western Coastal Farmland; North-East Coastal Farmland and Coastal Farmland East of Macduff* suggests that areas with greatest underlying capacity can accept a *Landscape with Wind Turbines* which would include small groupings of large turbines, but there is no capacity for large scale windfarms such as may be found in upland areas elsewhere in Scotland.

However capacity has already been taken up by consented developments in many areas. Currently consented development is for 175+ turbines. These are scattered across the *Coastal Farmlands* with the greatest concentrations south of Banff and Macduff, around Mormond Hill and St Fergus Moss, extending down to just south of Peterhead. Some of these areas are over their underlying capacity of *Landscape with Wind Turbines* and are *Wind Turbine Landscapes*, or have reached their capacity. This means that there are very few areas left where cumulative impacts do not limit development.

The proposed developments comprise a variety of turbines heights and group sizes. Applications in areas that are currently at or over their underlying capacity would lead to an unacceptable level of development in those areas; the turbines proposed south of Banff and south of Macduff around Hill of Tipperty and close to Boyndie, around Mormond Hill and St Fergus Moss and west of Peterhead would lead to further unacceptable levels of cumulative impact due to the number and size of turbines and juxtaposition of differing layouts.

It is recommended that separation distances listed in the guidance should be followed stringently in these over/at capacity landscapes and any further developments should closely match existing types and styles of turbines. Where there are applications for small extensions to existing groups of the same size and design, exploit opportunities for expanding existing small groups/creating groups in preference to further new groups.

6.4.3 Summary of Capacity and Cumulative Development in the Agricultural Heartlands

The Agricultural Heartland Landscapes are the largest in extent in Aberdeenshire and comprise fifteen LCAs: Central Wooded Estates; Northern Rolling Lowlands; Formartine Lowlands; Agricultural Heartlands; Kincardine Plateau; Garvock and Glenbervie; Upland Ridges South of the Deveron; Inch Basin; Howe of Mearns; Knockhill and Aberchirder; Ythan Strath Farmland; Wooded Estates around Old Deer; Howe of Alford; Howe of Cromar and Cromar Farmlands.

The *Agricultural Heartland* LCTs in Aberdeenshire have a medium capacity for wind turbine development, overall they can accommodate some forms of wind energy development due to their medium to large scale, extent, rolling landform and simple pattern. There are visually sensitive areas however, this is mainly a settled, working agricultural landscape and there are some areas of sufficient scale and simplicity in landform and land cover pattern to accommodate large turbines but in low numbers and small groups.

There are a number of more sensitive LCAs within this LCT, most notably the *Howe of Cromar* and *Cromar Farmlands* which due to their quality, rarity and value are not suitable for wind turbine development beyond a domestic scale (less than 15m). There are also areas which are only able to accommodate low levels of either small/medium or medium turbines, these areas such as *Wooded Estates around Old Deer; Ythan Strath Farmland and Central Wooded Estates* are smaller in scale, are often richly wooded with deciduous trees and have many intact high quality old estates policies. Within these areas there are many HGDL, important country houses and Country Parks so they have high recreation value.

Other areas such as the *Howe of Mearns, Howe of Alford and Inch Basin* also have lower capacity. This is because of their location and small extent, as pockets of farmland that are surrounded by distinctive upland areas such as Bennachie and The Mounth. These particular *Agricultural Heartlands* are the sheltered foreground to the great spurs of moorland rising above, and this contrast is one of the critical elements of Aberdeenshire's unique landscape identity. Taller turbines in these areas would blur this important contrast. These areas should be no more than *Agricultural Heartland with Occasional Wind Turbines* and are suitable for only medium/small turbines in less prominent locations.

In Aberdeenshire the remaining LCAs in *this LCT Northern Rolling Lowlands; Formartine Lowlands; Agricultural Heartlands; Kincardine Plateau; Garvock and Glenbervie; Upland Ridges South of the Deveron and Knockhill and Aberchirder* represent the best opportunity for wind energy development. They cover very extensive areas, with a medium to large scale simple landscape pattern of arable fields, roads and plantations. These areas have many of the characteristics that are considered compatible for wind turbine development and have capacity for larger turbines in some locations.

However capacity has already been taken up by consented developments in many areas. Currently consented development is for 400+ turbines. These are scattered across the *Agricultural Heartlands* with the greatest concentrations around Mormond Hill, east of

Strategic Landscape Capacity Assessment for Wind Energy in Aberdeenshire

March 2014

7933 ABS 142

Legend

- Study Area
- Study Area 30km Buffer
- Scottish Local Authority Boundaries
- Landscape Character Type / Area Boundary (see Table 3.1 for list)

Typology

- Landscape with no Wind Turbines
- Landscape with Occasional Wind Turbines
- Landscape with Wind Turbines
- Wind Turbine Landscape

Consented Turbines

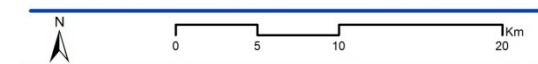
(Height Category and No. of Turbines)

- Cat 2: 15 to <30m
- Cat 3: 30 to <50m
- Cat 4: 50 to <80m
- Cat 5: 80m+
- Cat 6: 125m+

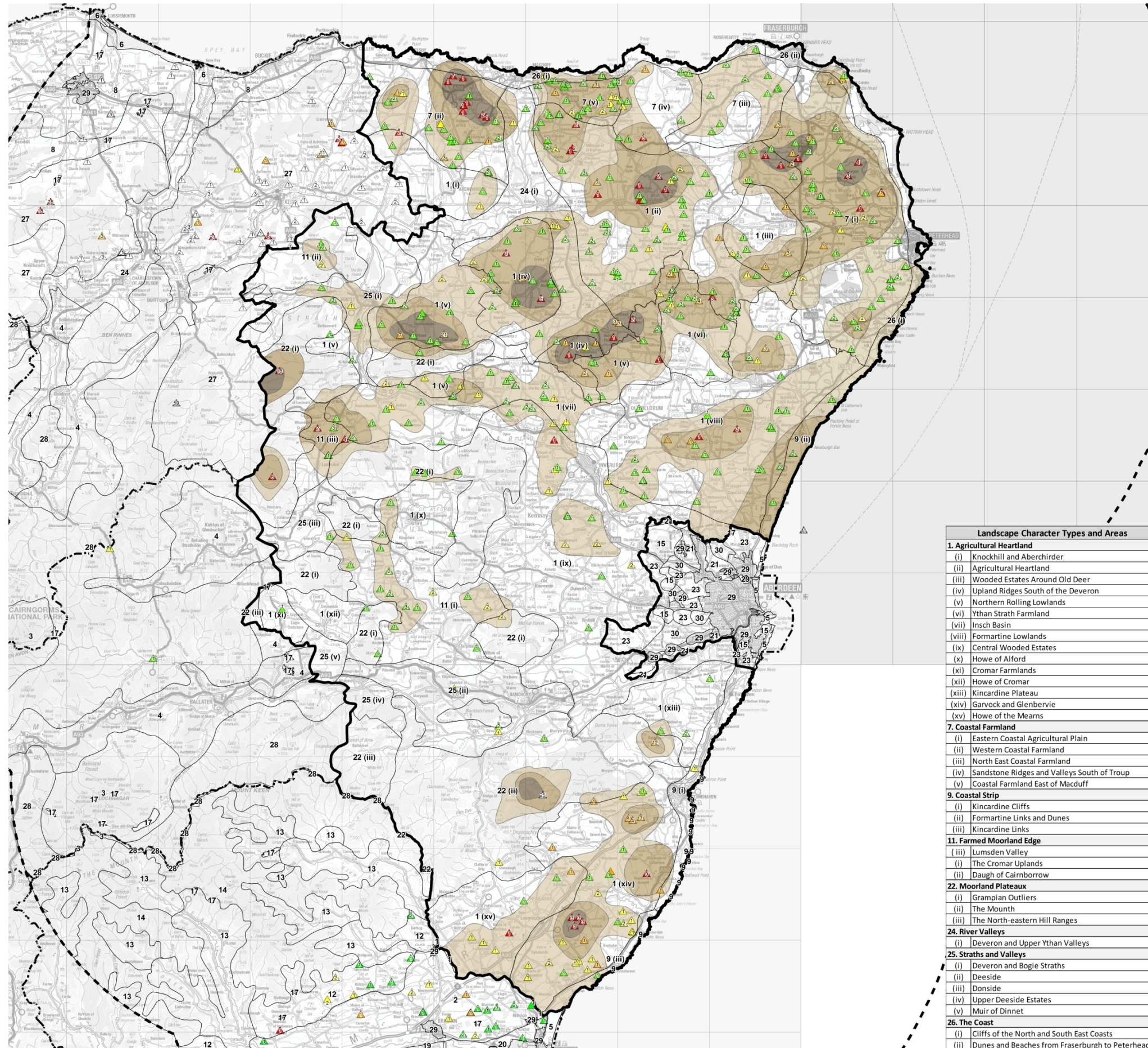
Landscape Character Types and Areas	
1. Agricultural Heartland	
(i)	Knockhill and Aberchirder
(ii)	Agricultural Heartland
(iii)	Wooded Estates Around Old Deer
(iv)	Upland Ridges South of the Deveron
(v)	Northern Rolling Lowlands
(vi)	Ythan Strath Farmland
(vii)	Insch Basin
(viii)	Formartine Lowlands
(ix)	Central Wooded Estates
(x)	Howe of Alford
(xi)	Cromar Farmlands
(xii)	Howe of Cromar
(xiii)	Kincardine Plateau
(xiv)	Garvock and Glenbervie
(xv)	Howe of the Means
7. Coastal Farmland	
(i)	Eastern Coastal Agricultural Plain
(ii)	Western Coastal Farmland
(iii)	North East Coastal Farmland
(iv)	Sandstone Ridges and Valleys South of Troup
(v)	Coastal Farmland East of Macduff
9. Coastal Strip	
(i)	Kincardine Cliffs
(ii)	Formartine Links and Dunes
(iii)	Kincardine Links
11. Farmed Moorland Edge	
(i)	Lumsden Valley
(ii)	The Cromar Uplands
(iii)	Daugh of Cairnborrow
22. Moorland Plateaux	
(i)	Grampian Outliers
(ii)	The Mounth
(iii)	The North-eastern Hill Ranges
24. River Valleys	
(i)	Deveron and Upper Ythan Valleys
25. Straths and Valleys	
(i)	Deveron and Bogie Straths
(ii)	Deeside
(iii)	Donside
(iv)	Upper Deeside Estates
(v)	Muir of Dinnet
26. The Coast	
(i)	Cliffs of the North and South East Coasts
(ii)	Dunes and Beaches from Fraserburgh to Peterhead

Figure 6.2

Current Windfarm Landscape Typology



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown Copyright 2014. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. AL100017966



Strategic Landscape Capacity Assessment for Wind Energy in Aberdeenshire

March 2014

7933 ABS 143

Legend

- Study Area
- Study Area 30km Buffer
- Scottish Local Authority Boundaries
- Landscape Character Type / Area Boundary (see Table 3.1 for list)

Typology

- Landscape with no Wind Turbines
- Landscape with Occasional Wind Turbines
- Landscape with Wind Turbines
- Wind Turbine Landscape

Consented Turbines

(Height Category and No. of Turbines)

- Cat 2: 15 to <30m
- Cat 3: 30 to <50m
- Cat 4: 50 to <80m
- Cat 5: 80m+
- Cat 6: 125m+

Application Turbines

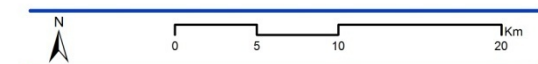
(Height Category and No. of Turbines)

- Cat 2: 15 to <30m
- Cat 3: 30 to <50m
- Cat 4: 50 to <80m
- Cat 5: 80m+
- Cat 6: 125m+

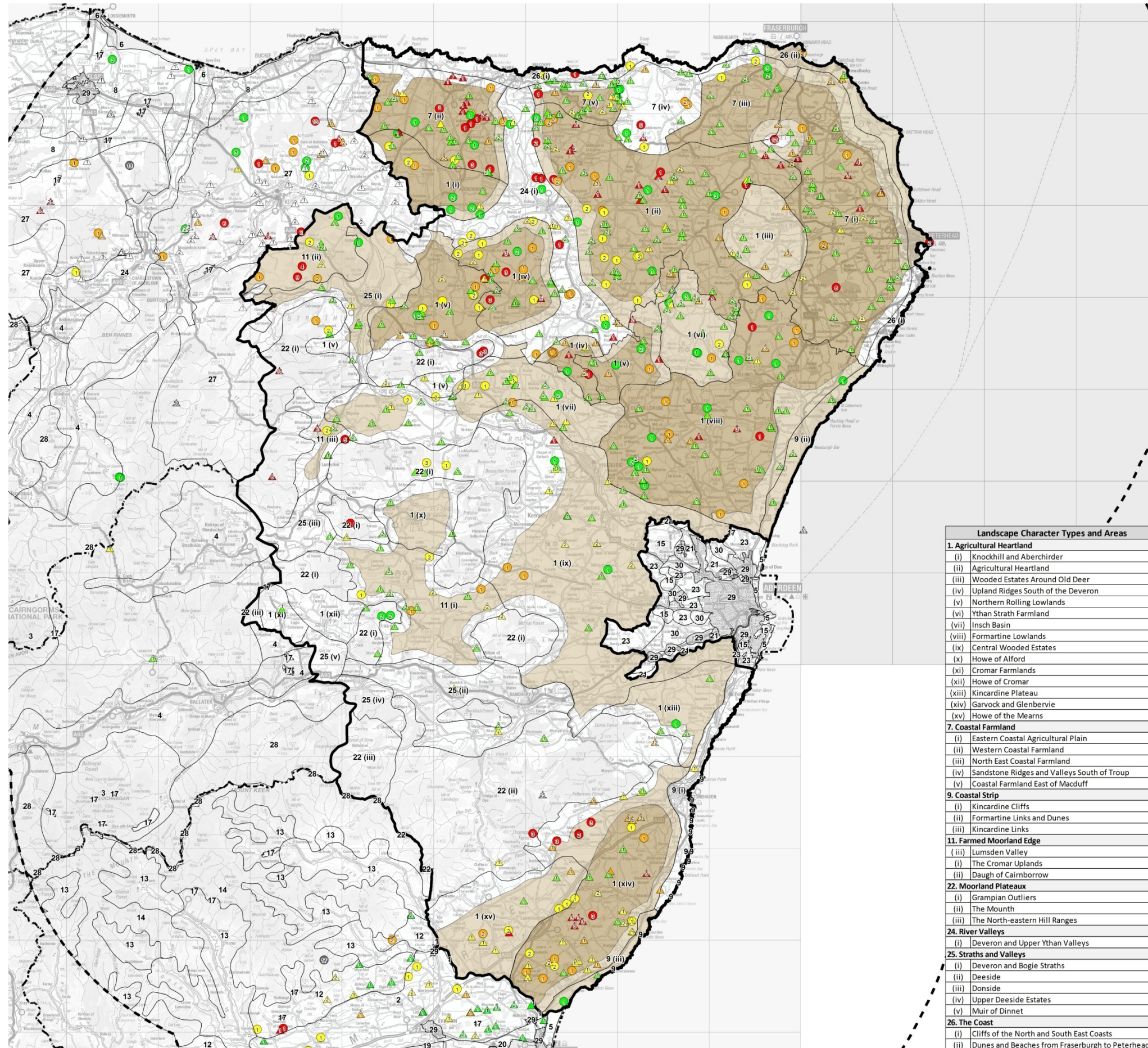
Landscape Character Types and Areas	
1. Agricultural Heartland	
(i)	Knockhill and Aberchirder
(ii)	Agricultural Heartland
(iii)	Wooded Estates Around Old Deer
(iv)	Upland Ridges South of the Deveron
(v)	Northern Rolling Lowlands
(vi)	Ythan Strath Farmland
(vii)	Insch Basin
(viii)	Formartine Lowlands
(ix)	Central Wooded Estates
(x)	Howe of Alford
(xi)	Cromar Farmlands
(xii)	Howe of Cromar
(xiii)	Kincardine Plateau
(xiv)	Garvock and Glenbervie
(xv)	Howe of the Mearns
7. Coastal Farmland	
(i)	Eastern Coastal Agricultural Plain
(ii)	Western Coastal Farmland
(iii)	North East Coastal Farmland
(iv)	Sandstone Ridges and Valleys South of Troup
(v)	Coastal Farmland East of Macduff
9. Coastal Strip	
(i)	Kincardine Cliffs
(ii)	Formartine Links and Dunes
(iii)	Kincardine Links
11. Farmed Moorland Edge	
(i)	Lumsden Valley
(ii)	The Cromar Uplands
(iii)	Daugh of Cairnborrow
22. Moorland Plateaux	
(i)	Grampian Outliers
(ii)	The Mounth
(iii)	The North-eastern Hill Ranges
24. River Valleys	
(i)	Deveron and Upper Ythan Valleys
25. Straths and Valleys	
(i)	Deveron and Bogie Straths
(ii)	Deeside
(iii)	Donside
(iv)	Upper Deeside Estates
(v)	Muir of Dinnet
26. The Coast	
(i)	Cliffs of the North and South East Coasts
(ii)	Dunes and Beaches from Fraserburgh to Peterhead

Figure 6.3

Proposed Limits to Development Windfarm Landscape Typology



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown Copyright 2014. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. AL100017966



Cuminstown, at Glens of Foudland, north of Rothienorman, south of Fyvie and east of Laurencekirk. Some of these areas are over their underlying capacity of *Landscape with Wind Turbines* and are *Wind Turbine Landscapes*, or have reached their capacity. **This means that there are only a small number of areas left where cumulative impacts do not limit development.**

The proposed developments comprise a variety of turbine heights and group sizes. Applications in areas that are currently at or over their underlying capacity would lead to an unacceptable level of development in those areas. In particular this is the case for the turbines proposed at Glens of Foudland, north of Rothienorman, south and north of Laurencekirk, around Mormond Hill and south of Fyvie. These would lead to further unacceptable levels of cumulative impact due to the number and size of turbines and juxtaposition of differing layouts.

It is recommended that separation distances recommended in the guidance should be followed stringently in these over/at capacity landscapes and any further developments should closely match existing types and styles of turbines. Where there are applications for small extensions to existing groups of the same size and design, exploit opportunities for expanding existing small groups/creating groups in preference to further new groups.

6.4.4 Summary of Capacity and Cumulative Development in the Moorland

The Moorland area in Aberdeenshire comprises two LCTs: *Moorland Plateaux (MP)* and *Farmed Moorland Edge (FME)*. These are divided into three LCAs in each: *Lumsden Valley*; *The Cromar Uplands and Daugh of Cairnborrow in FME and Grampian Outliers*; *The Mounth and The North Eastern Hill Ranges in MP*.

The assessment of *Moorland Plateaux LCT* has determined that this area of Aberdeenshire has no capacity for wind turbine development above 15m in height despite extensive areas of large scale landscapes. This is primarily due to the *Moorland Plateaux* area's high landscape value, both as a backdrop to the farmed areas of Aberdeenshire but also as an extensive area of scenic landscape. They are distinctive landforms integral to the landscape identity of Aberdeenshire and visible from a wide area. *Moorland Plateaux* are also areas of remote land with strong wilderness qualities. They function as important recreational destinations and many of the areas lie either adjacent to the Cairngorms National Park, overlap with Angus or extend further west into a wider area of higher mountains and wilderness.

It is recommended that no turbines over 15m in height are located in the *Moorland Plateaux* with only turbines of a domestic scale and at the base of slopes closely associated with buildings. Restricting development in upland areas is counter to the development pattern that has taken place elsewhere in many other areas of Scotland. Nevertheless it reflects the sensitivity and value of all the LCTs within this area; their particular contribution to the landscape character of Aberdeenshire as a whole and their proximity to the Cairngorms National Park.

Within the *Farmed Moorland Edge* there would be some opportunities for medium/large turbines in *Daugh of Cairnborrow* and only limited opportunities for smaller scale developments in the *Cromar Uplands*. A similar small amount of capacity existed in the *Lumsden Valley* but this has been taken up by consented development.

Currently there are ninety-two operational or consented developments within the *Moorland Plateaux* of Aberdeenshire. There are wind farms at Hills of Foudland (twenty one medium/large), Dummuies (seven medium/large), Cairnmore (there large), Hill of Garvock (seventeen large), Cloch-na Hill (seven large) and St Johns (nine large). There are also Fifty-nine turbines at Dorenell in Moray. These are all visible from *Moorland Plateaux*. There are parts that are over their underlying capacity which should be *Moorland Plateaux with No Wind Turbines* and are *Wind Turbine Moorland Plateaux*.

In the *Farmed Moorland Edge* there are thirty-four consented turbines and these take up all of the capacity in the *Lumsden Valley* and also result in the *Cromar Uplands* becoming a *Farmed Moorland Edge with Occasional Wind Turbines* which is almost at its underlying capacity.

Most of the proposed wind turbines located in or near the moorland areas would lead to a significant change on the current situation further exceeding the proposed landscape capacity.

6.4.5 Summary of Capacity and Cumulative Development in the Straths and River Valleys

The *Straths and River Valleys* landscapes comprise six LCAs: *Deveron and Upper Ythan Valley*; *Deveron and Bogie Straths*; *Deeside*; *Donside*; *Muir of Dinnet and Upper Deeside Estates*.

The *Straths and River Valleys* LCTs in Aberdeenshire have low or no capacity for wind turbine development greater than at a domestic scale due to their small scale, high quality, value and visual sensitivity. *Deeside*, *Donside*, *Muir of Dinnet*, *Deveron and Upper Ythan Valley* and *Upper Deeside Estates* can only accommodate wind turbines below 15m and they should be associated with buildings and/or backclothed by higher ground /trees.

The *Deveron and Bogie Straths* can accommodate single turbines up to 50m and small groups of widely spaced small/medium turbines as a *Straths and River Valleys with Occasional Wind Turbines*.

Currently there are twenty five wind turbines in the *Straths and River Valleys* areas and making small areas of *Landscape with Wind Turbines* and an area in the south of the *Deveron and Upper Ythan Valley* a *Wind Turbine Landscape*. Capacity has been exceeded in the south of the *Deveron and Bogie Straths*.

There are proposals for eighteen turbines within the area. These would exceed the underlying capacity in the *Deveron and Bogie Straths* making a *Landscape with Wind Turbines*. In addition proposals for larger turbines along the boundary within the adjoining LCTs could also lead to further changes on the current situation.