KEY DRIVERS OF LANDSCAPE CHANGE IN THE CAIRNGORMS NATIONAL PARK OVER THE NEXT 10 YEARS AND BEYOND

The following tables have been produced with reference to available reference material and expertise within CNPA. A number of assumptions are made based on the known context, the Scottish Government Climate change work and initial work on the Scottish Government Land Use strategy. These are:

- That policies will aim to increase the resilience to climate change over time by adapting, to and mitigating the effects of change and seizing new opportunities presented by change
- That essential structural change and behavioural change will take place over time, supported by the government and others.
- That there will be a period of declining public investment for some time with consequent effects on employment.
- That the price of oil and oil-derived commodities will continue to rise
- That the availability and nature of support for agriculture in its current form will change
- That there will be a gradual rise in visitor numbers in the long term

lssue	Tim	escales	Key Landscape effects	
	Short term (up to	Medium term (2014	Long term (2021	
I.I General – Great uncertainty, need a range of options/futures	2013)			As a driver climate change adaptation is likely to encourage a mixed landscape with emphasis on economically and ecologically resilient land uses. The scale of this landscape diversity is likely to relate to the current scale of land use because of the need for social resilience and an adaptation framework that will work through existing structures LAs and CPPs.

I.0 Climate change - Adaptation

I.2 Dramatic events - flooding	Restrictions on new built	Areas within straths designated 'flood	Woodland planting specifically designed	Uniformity of open strath landscapes altered in some places where the
	development in	alleviation areas' will	and managed to	ground is waterlogged for extended
	flood risk areas.	be differentially	slow down water	periods. Increase in rushes, scrub
	Any development	managed/ appear	flows within	willows etc
	in flood risk area	different. Some	catchments.	Increase in area of woodland in
	needing	levees may be		'flashy' catchments.
	constructed flood	removed.		
	defences.			Local landscape impacts from
				construction of flood defences.
I.3 Dramatic events –	Better handle on	Risks managed	Reduction in	
soil erosion and slips.	risk factors and soil	through	mechanised tree	Reduction in the often stark
	vulnerability.	combination of	planting and	character changes associated with
	Restrictions on	incentives and	increase	woodland planting and harvesting.
	those	regulation. Better	continuous cover	
	developments and	soil management	woodland	A subtler approach to woodland
	activities likely to	through nature and	management	management allows woodland to
	increase sediment	timing of		relate more closely to
	burden in water	activities/cultivations		underlying/prevailing landscape
	courses.	and cropping.		character
				Less cropping in vulnerable areas
				affects diversity of landscape
				character.
				Possible local landscape character
				offects as built developments
				become disassesisted from water
				courses
1 4 Dramatic overte	Damage from out	Possible increasing	Wildfire and post	Possible restrictions on muirburn
drought fire	of-control	wild fing risks	damage visible in	and change to moorland patterns
	muirburn	countered by	stands	Possible changing pattern of
		woodland	stallus	woodland planting to allow for fire
		management		moodiand planting to allow for fire
		management		management (inte breaks etc)

2.0 Climate Change - Mitigation

Issue	Timescales			Landscape effects/challenges
	Short (up to 2013)	Medium (2014 to 2020)	Long (2021 +)	
2.1 Carbon sequestration - woodland The principle mitigation response to climate change within the park is likely to be an increase in woodland cover (with a SFS objective to have 25% forest cover by 2050) In order to reduce climate change risks – strategy for diversification e.g. mixing species in stands to reduce impacts of pests and diseases Being informed by predictive research	SRDP incentives - some landowners/ farmers are opting to grow small areas of trees in awkward corner sites. Some large native woodland schemes.	More woodland areas under continuous cover management systems, especially in areas prone to high winds and high rainfall. Active and unplanned spread of woodland on to moorland and marginal and abandoned farmland. Phased removal of planted and regenerating spruce and larch especially in the interior glens. Woodland planting and management is guided by principles	Rising tree line (increase in montane woodland). Active planting and management of woodland for woodfuel and timber production as opposed to export for chip and board production.	More trees, more woodland, higher proportion of native species - means gradual change in the landscape of many parts of the Park and significant changes to some agricultural and moorland landscapes. Effects on the sense of openness, scale and pattern in the landscape, visible history and associations. Some features such as rivers picked out by woodland. Some upgrading of tracks and bridges to remove inaccessible plantings of commercial species. Gradual change in some places to the experience of the approach to the hills as the tree line rises. Challenge to get woodland in the right place, responding to landscape character and respecting the special qualities of the Park.
		of habitat		

		notworks		
		networks.		
		Likely to see more woodland on what was formerly moorland or marginal farmland, more managed wood pasture, an increase in riparian woodland and more deer fencing		
2.2 carbon sequestration -soils	Restrictions on development in uplands, and river- related development (sediment). Sensitive approaches to track and other construction in upland areas agreed.	Restriction of muirburn? More incentives for blocking drains on moorland and straths to increase peat formation.		Changes to patterns of muirburn.
2.3 production of renewable energy outside the Park A significant mitigation response to climate change is wind and hydro energy development.	Occasional wind farm visible from within the park	Wind farms visible from high points in the Park and on approaches to the Park from the east and north west and south east	Clusters and substantial wind farms affect the experience of and approaches to the national park in all directions.	Challenge – to define and protect the setting of the National park landscape. To identify and protect most sensitive areas.

Wind energy dev. outside the Park has potential to affect the landscapes within the park.				
2.4 Small scale energy generation within the Park.	reed-IN-Tariff scheme from April 2010 will increase the demand for a range of different renewable technologies at different scales. 2010 FIT supports wind, hydro, solar photovoltaics, anaerobic digestion and Micro CHP, up to 5MW. Community and householder applications, then farm/estate schemes as tenant/landowner agreements are worked out.	Renewable Heat Incentive scheme from April 2011. 2011 RHI proposed to support ground source heat, air source heat, air source heat, biomass boilers and solar thermal. Level of awareness of renewable options high in park communities.	Level of energy generated renewably by households and communities within park is higher than average. Certain forms of generation have become characteristic of certain communities where there is a clear resource advantage and no over-riding impacts.	Many small applications leading to cumulative landscape impacts. Wind and hydro applications generating 5MW of power or even considerably less can have significant landscape effects. Wind turbines owing to height can have extensive visual impact as well as effects on landscape character. Increase in resurrection of pre- existing hydro schemes in park. Biomass boilers (light industrial units) in the landscape. Short rotation coppice and woodland for biomass can have significant effects. Challenge to take all potential impacts and benefits into account and provide appropriate guidance. Ground source heat can have landscape effects depending on design and stage of installation.

3.0 Globalisation/global Effects

Issues	Timescales		Landscape Effects	
	Short term (up to	Medium term	Long term (2021	
	2013)	(2014 to 2020)	+)	
3.1 International trade			Park able to	
in greenhouse gas			promote itself as a	
emissions,			valuable 'sink' for	
			carbon	
3.2 rising commodity				See agricultural factors at 5.0
prices,				
				Timber production at 5.0
The rising price of				
some global				
commodities will have				
a particular impact				
upon activities within				
the Park and therefore				
also upon decisions				
that affect the				
landscape. The price of				
oil, livestock				
concentrates, and				
fertilisers will all affect				
farm and other				
business viability. The				
price trend for those				
commodities derived				
from oil such as diesel				
fuel and inorganic				
fertilisers is a rising				
one as demand goes up				

and supplies dwindle,			
or become more			
difficult to access.			
The prices of other			
commodities such as			
timber and livestock			
concentrates are at the			
vagaries of factors			
which are often			
difficult to predict with			
much .			
Certainty.			
,			
3.3 animal and plant			See agricultural factors at 5.0
disease issues, Aspects			
of globalisation will			
generate a national			
response in terms of			
policy on plant and			
animal disease issues.			
Location and climate			
within the Park present			
opportunities for high			
plant and animal health			
status opportunitios			
for broading and			
for breeding and			
2.4 slabal		Chan abanga in want	
5.4 glodal	hand contractivity	Step change in work	Office hubs in rural locations of in
communications	band connectivity	patterns with some	settlements.
	- connected	people in the park	New and relocated e-businesses -
	communities	working from home	light industrial units for storage and
		and from	distribution.
		community hubs	

4.0 Social and Demographic change

Issues	Tim	nescales		Landscape Effects
	Short term (up to	Medium term	Long term (2021 +)	
	2013)	(2014 to 2020)		
4.1 Declining		Declining		See section 5.0
population		population		
		combined with		
		increasing age		
		profile is		
		beginning to have		
		an adverse effect		
		on some		
		industries such		
		as farming		
		exacerbated by		
		low farm		
		incomes young		
		people are		
	-	leaving the land		
4.2 Home Ownership	Continuing trend	Housing capacity	There is a low level of	More housing in the Park.
changes	towards smaller	within the Park is	new house building	Challenge to establish Landscape
	households and	established.	with development	capacity for housing
	increasing demand	Mechanisms for	focusing on brown	
	for affordable	protecting	field sites and	
	housing. Market	housing stock for	renovations.	Challenge – to secure appropriate
	still skewed by	the resident		location, siting and quality design
	demand from	population are in		without excessive cost penalties.
	people who want	place.		And without adversely affecting the
	to live in the park	· ·		quality of the Park settlements and
	for its quality of	Increase in		their context.

	life and for holiday/second homes. All of this means more housing in the Park	ground set aside for gardening/allotm ents and for grazing and fodder for horses		Development of a new vernacular as sustainable design principles work through to the market place. Small scale land use patterns close to settlements
4.3 Employment	Decline in employment over short term at least. Fall in public sector employment in the wider region affecting those who live in and use the park.			
4.4 Transport, utilities		Possible	Gradual rise in visitor	Beauly-Denny: considerable
and services	A period of	upgrading of the	numbers give basis for	disturbance and local affects on
ovpoctations for	invostment effects	transport	businesses and related	Doclining invostment in reads and
transport and utilities	investment anects	u ansport	Dusinesses and related	Declining investment in roads and
	the quality of the	network – A9	signage	footpaths: Increasing young
and services that	the quality of the	network – A9. Effects on	signage.	footpaths: .Increasing young
and services that impact upon the	the quality of the local road network and	network – A9. Effects on landscape	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters
and services that impact upon the landscape.	the quality of the local road network and associated	network – A9. Effects on landscape character of road	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and
and services that impact upon the landscape.	the quality of the local road network and associated infrastructure,	network – A9. Effects on landscape character of road and associated	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience.
and services that impact upon the landscape.	the quality of the local road network and associated infrastructure, management of	network – A9. Effects on landscape character of road and associated developments.	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to
and services that impact upon the landscape.	the quality of the local road network and associated infrastructure, management of open spaces,	network – A9. Effects on landscape character of road and associated developments.	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to management of parks and gardens
and services that impact upon the landscape. This infrastructure is	the quality of the local road network and associated infrastructure, management of open spaces, parks and gardens	network – A9. Effects on landscape character of road and associated developments. Public	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to management of parks and gardens challenges community expectations.
and services that impact upon the landscape. This infrastructure is local e.g. roads,	the quality of the local road network and associated infrastructure, management of open spaces, parks and gardens and access	network – A9. Effects on landscape character of road and associated developments. Public investment levels	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to management of parks and gardens challenges community expectations. Poorly managed roadside parking
and services that impact upon the landscape. This infrastructure is local e.g. roads, footpath and managed	the quality of the local road network and associated infrastructure, management of open spaces, parks and gardens and access infrastructure	network – A9. Effects on landscape character of road and associated developments. Public investment levels still low but	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to management of parks and gardens challenges community expectations. Poorly managed roadside parking and signage and other roadside
and services that impact upon the landscape. This infrastructure is local e.g. roads, footpath and managed green spaces or	the quality of the local road network and associated infrastructure, management of open spaces, parks and gardens and access infrastructure (means a general	network – A9. Effects on landscape character of road and associated developments. Public investment levels still low but possible increase	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to management of parks and gardens challenges community expectations. Poorly managed roadside parking and signage and other roadside clutter, especially in the vicinity of
and services that impact upon the landscape. This infrastructure is local e.g. roads, footpath and managed green spaces or strategic e.g. A9 and	the quality of the local road network and associated infrastructure, management of open spaces, parks and gardens and access infrastructure (means a general poor quality of	network – A9. Effects on landscape character of road and associated developments. Public investment levels still low but possible increase in community	signage.	footpaths: .Increasing young regenerating birch, pine and spruce along roadsides and path sides alters and obscures important views and affects experience. A less intensive approach to management of parks and gardens challenges community expectations. Poorly managed roadside parking and signage and other roadside clutter, especially in the vicinity of popular walking routes has local

1	level of	space	the travellers experience.
	management of	management	Challenge – encourage LAs to take a
	verges and road-	_	strategic approach to their landscape
	side parking.)		management and maintenance work
	Strategic		
	Beauly Denny line		
	progresses.		

5.0 Land based industries - Agriculture, estate management, timber production, woodfuel production

Issues	Timescales			Landscape Effects
	Short term (up to	Medium term (2014	Long term	-
	2013)	to 2020)	(2021 +)	
5.1 SRDP	SRDP measures	Phasing out of Single		Effects on the pattern and extent of
	such as small scale	farm Payment puts		agricultural land which has an
CAP reform in 2013 is	woodlands,	strain on farm		adverse effect on the special
likely to see major	hedging etc are	businesses; some		landscape qualities of the park.
change in terms of levels	taken up within	diversify their		
of payments available	the Park.	businesses into a		Appropriate agri-environment
and the outcomes		range of rural		measures enhance landscape
desired under pillar l		enterprises.		character and increase biodiversity.
and pillar II (including				
LFA support), this		Targeted agri-		Challenge – influencing range and
means proportionately		environment		nature of agri-environment
more funding going into		measures fit with the		measures and targeting priorities.
the development and		Park priorities.		
diversification of rural				The changes in CAP are likely to
communities rather than		There is increasing		prompt a range of generally small
directly into farms.		community interest		scale business developments, but
		in and control over		possibly also some large scale with
		land – and therefore		related infrastructure, buildings and
		landscape.		activities not currently characteristic
		There is more		of the Park landscape.
		support for		
		community-based		Challenge – appropriate location of
		improvements and		built development in relation to
		ventures e.g.		landscape character. Sufficient
				resource to secure high quality siting
		Village halls		and design.

		Transport Woodlands Renewables		
 5.2 Declining guaranteed farm incomes from Single farm payment combined with increased costs Fossil fuel prices affect diesel and fertiliser prices in particular which in turn affect the costs of cultivation and growing crops including pasture Climate change 	Arable cropping of barley and spring oats likely to decline with continued viability for livestock production especially where operations are extensive. Higher input costs may mean that organic enterprises become more financially realistic as might the finishing of livestock on-farm.	Reduction in livestock numbers in some areas means more regenerating woodland on farmland.	Land in short rotation arable cropping much reduced. Mixed farms only found in the more fertile and sheltered areas of the Park Some farm abandonment. Farm aggregation. Land not being managed for agriculture continues to be taken in by estates.	The straths and glens are a key element of the character of the park acting as a foil for the mountains and moorland and the place where people live and work. In the main glens and straths there will be changes to the character of the landscape as the amount of arable production declines, but it is in the upper and side glens where the more profound changes are likely to be evident. The upper and side glens are more remote from centres of population and with constraints relating to soils, drainage and altitude are less productive and marginal. The landscape character of these areas is particularly vulnerable to change (such as forestry and 2 nd homes). However, the ongoing agricultural management of these kinds of areas is often not down to pure economic viability but also to cultural and emotional factors; family

				ties; a sense of continued stewardship; and an inclination to stay and work the land. Challenge – identifying those areas where the farmed character is critical to the special qualities of the Park and securing the resource for appropriate management.
5.3 Age structure – few young people coming into the industry even from farming families	If this trend continues will see a decline in stocking as farmers become unable to do the physically demanding work necessary.	Tenant farms taken back in-hand by estates and planted up to woodland.	Less supporting industry – local trades, local agricultural suppliers and contractors Redundant buildings	Less active farming in some areas with decline in livestock numbers, the level and quality of farm stewardship and an increase in redundant farm buildings will change the character in some straths and glens. More woodland on marginal farmland.
5.4 Systems of land tenure,	Increase in short term tenancies (5 to 15 years) is a disincentive to attracting young people into the industry. Tenancies put limitations on options for the farmer such as renewables or woodland planting.			Exacerbates factors above

5.5 Estate management	Recession may have effect on demand for sport shooting and fishing in short term. Unlikely to significantly affect investment in private estates but severe restrictions			Public Sector and NGO-managed estates cover extensive tracts of the National park. A reduction in inputs is likely to have landscape effects in the medium to long term. Challenge – to influence partner landscape outcomes at a strategic level.
	may affect activities on			
	estates run by Public sector and NGOs.			
5.6 Timber production	Increased demand as result of the	Changing design/management	Market beginning to develop in and	Changing pattern of woodland, species and management.
The rising price of timber imports likely to prompt more local timber production.	sustainable design imperative (govt policy driven) and greater awareness of timber construction techniques support an increase in local production.	of some woodlands. Some managed specifically for timber production – different species, less exposed locations, systematic thinning. Possible increase in local small scale seasoning and milling	outside park. Integrated forest management for production of range of products.	Industrial buildings in rural locations. Increased heavy vehicle use on some minor roads.
	Skills developed and supported within CNP	facilities		
5.7 Wood fuel	Unsophisticated firewood industry. Ad hoc felling for	High demand owing to greater awareness and relative cost of	Integrated supply chain for wood fuel. Sustainable	Changing pattern of woodland management in some areas. Demand for hard-wood planting.

firewood,	different heating	supply-demand	A few industrial buildings in rural
shortage of quality	options, but supply	within National	locations - large, covered
firewood (dry	limited by access to	Park and beyond.	sheds/structures for commercial
hardwood).	land.	-	drying and storage of firewood.
	Some		Increased heavy vehicle use on some
Processed	entrepreneurism		minor roads.
woodfuel coming	appearing in the		Changing house design to suit
on stream.	market.		woodfuel heating and woodfuel
Incentivised	Occasional		storage.
district heating	processing plant,		More planting and management of
schemes.	supply contracts		trees for firewood on an individual
	with landowners,		householder basis.
	organisational		
	customer contracts		

6.0 Other Rural industries - Tourism, health and well-being, food and drink

Issues	Timescales		Landscape Effects	
	Short term (up	Medium term	Long term (2021	
	to 2013)	(2014 to 2020)	+)	
6.1 Economy and global security issues mean More 'stay at home' tourists Change in visitor profile and expectations.	Increase in demand for high quality self- catering accommodation	Increased levels of access/demand for access infrastructure. More tourism	Increase in interpretation and more 'honey- potting' responding to the public's desire to be	Increase in demand for holiday accommodation developments in attractive locations. More people in the landscape, especially in certain 'hub' locations. More access infrastructure e.g.
Gradual increase in visitors as a direct response to the NP designation,		based on specific interests e.g. archaeology/cultura l history, wildlife, art etc	directed/entertaine d. More use of technology for interpretation e.g. podcasts/ iPods	bridges and an increase in access- related damage erosion. More interpretation 'furniture' Possible pressure on the archaeological and built heritage within the landscape People have a better understanding of the landscape. Challenge – to protect the quality of the landscape resource especially around popular 'hub' locations.
6.2 Small scale local production of food and drink products responding to increasing transport costs and life style decisions, climate change and food security.	Disparate, local production and outlets, meeting very small local demand.	Growing local demand. Small-scale local processing and distribution units. More sophisticated routes to market.	Integrated supply chain; production, processing and sales. Advances in crop protection techniques making production at altitude and in exposed locations	Increase in use of polytunnels and crop protection techniques Changes in cropping e.g. to supply local brewing industry. Light industrial buildings in rural locations plus associated transport, storage and distribution infrastructure. May see some marginal land

		more feasible.	brought back into production in
			some areas.
6.3 Health and well being	Recognition of the		More people, possibly more
A policy driver	National Park as		resource available for caring for the
	national resource		landscape.
	for health and well-		Challenge – to encourage people
	being		to recognise the park landscapes as
	-		a national and local asset.