Resilient and responsive to the impacts of climate change, storing more carbon each year than it produces

Facts, figures and trends

- Over 95% of the land in the National Park is in private ownership, with farmers and landowners undertaking predominantly all of the management of the significant natural carbon stores.
- Over 4mW of small-scale renewable energy schemes have been installed (up from 1 mW in 2013). The largest growth has been in biomass, which now accounts for over 50% of renewable energy generation[1].
- Total net greenhouse gas emissions from the Park are around 700,000 tonnes of CO_2 equivalent[2]. Emissions are, therefore, very low per ha (4t per ha compared to the UK average of 23t per ha) but high per person (35t per person vs England average of 5.6t per person)[3].
- The predominant source of greenhouse gas emissions (60%) is agriculture and land use, followed by transport (18%).
- The predominant land uses are moorland, heathland and unenclosed grassland (around 52% of the land area), much of which is managed as grouse moor, and farmland (41%)[4]. Only 3.7% is covered by woodland, of which around half is commercial conifer plantation[5].
- Over 1,000 ha of native broadleaved woodland has been planted since 2008[6]
- The National Park contains over 50,000 ha of peatland: 28,000 ha of which is 'blanket bog (with deposits up to 7 metres deep), with the rest being shallower (<0.4 m) peat deposits. Much of the peatland has become heavily degraded following the introduction of artificial drainage ('grips') in the 1980s. More natural drainage has now been restored across around 19,000 ha of peatland since 2009 through the Yorkshire Peat Partnership.

Policy Context

Adapting to Climate Change in the Yorkshire Dales National Park, National Park Management Plan Steering Group (2011) – anticipates some of the impacts, threats and opportunities posed by climate change in the context of the Yorkshire Dales National Park.

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1 Yorkshire Dales National Park Authority (2017). Information relates only to the former National Park area

2 Figure derived from *Greenhouse Gas Emissions Estimates for England's National Parks* (2010), WGB Environment; *CO_2 emissions for English National Parks* (2009), AEAT/Defra; and *Estimated emissions from peat in the Yorkshire Dales National Park* (2009), Natural England. Emissions of CO_2 are based on 2006. Those for other greenhouse gases are for 2008

3 2015 UK greenhouse gas emissions

4 *Landscape Change in the National Parks of England and Wales, Silsoe College (1991)*

5 Forestry Commission (2017)

6 YDNPA (2018). Relates only to the former National Park area

Yorkshire Dales Strategic Flood Risk Assessment (2014), NYCC – looked at flood risks from fluvial, surface and ground water sources, including the projected impacts of climate change, and analysed implications for development sites.

Renewable energy capacity studies for Cumbria and Yorkshire (2011) together with a ***Landscape Sensitivity Framework (2012) for North Yorkshire*** – assess the potential for renewable energy to be developed in light of technical and environmental constraints. The National Park is generally assessed as only having potential for micro-scale technologies.

Issues

- Producing 'public goods' (such as carbon storage and natural flood management) could become an important element in contributing to the viability of upland farming.
- While the total area of land in some form of environmental agreement has increased dramatically, the area in 'enhanced' conservation management is decreasing (as only around half of farmers in the Environmental Stewardship Higher Level Scheme are getting transferred into the new Countryside Stewardship Scheme).
- There is an increasing awareness of the 'publicl goods' provided by farmers and landowners (carbon storage, flood management, etc.) What can be done to exploit opportunities for Dales' farmers and landowners to gain economic benefit from the range of environmental goods they provide?
- How can farming enterprises be supported to improve their competitiveness and reduce costs in ways that also reduce greenhouse gas emissions (e.g. improving energy efficiency, reducing fertilizer use, taking advantage of renewable energy options)?
- Rivers rising in the Dales were responsible for numerous floods in conurbations outside the National Park in December 2015. What more could be done to incentivise and engage with farmers and landowners to deliver natural flood management measures?
- How can flooding from rivers, surface flows and groundwater levels in the National Park be avoided in future? What avoidance and resilience measures could be developed?
- How can the Park most effectively contribute to the national target to reduce carbon emissions by 80% by 2050:
  - there are still large areas of degraded peatland that should be restored, with huge benefits for carbon storage, and water quality. How can the established Peat Partnerships be resourced to complete initial restoration work across the whole Park? How can farmers and land-managers then be resourced to manage the peat in the long term?
  - what scope is there for better management of non-peat soils?
  - there is scope to incorporate significantly more native woodland into the generally open landscape character of the Park, but how could it be funded?
  - could more be done to promote wider take-up of small-scale renewable energy to improve local resilience?
- What realistic scope is there to reduce journeys by car – both to and within the Park?

- What role can public and community transport schemes play in the future – given that free bus passes have rendered most commercial services unviable?
- How can the development of renewable and low carbon technologies be incentivised and how can conflicts with the special qualities of the National Park be avoided or mitigated.
- The topography and poor soil fertility mean the Park is largely unsuited to commercial biomass production. However, there may be scope for more local woodfuel usage – especially by local farm businesses using/managing their own woodland.