Green Party of England and Wales
Land Use Policy Background Paper

Explanation of Policies

NB A quick overview of the work of the Land Use Policy Working Group can be obtained by reading the first 4 chapters (Summary, Introduction and Context, Approach), followed by sections you are interested in from the Thematic Chapter. The Land Use Scenario we are working to, following consultation, is in our Land Use Green Space together with much more information.

For further information on our work, please contact us via our Green Space

1. SUMMARY

The last major revision of the Land chapter of the Policy for a Sustainable Society was in 1990. The Land Use Policy Working Group (LUPWG) has taken the principles from the current policy, but updated them to reflect how other policy areas that are referenced have moved on, and taking into account the Green Party principles in the Philosophical Basis. The group has also undertaken a systematic review of how we currently use land in the UK and what this means in terms of greenhouse gas emissions, sustainability and environmental impact

The fact that we are using about 4x more land than is sustainable led us to develop a way of prioritising how we should use it and to think about ways in which we might need to modify the way we run our lives. To do this we referred back to the

Green Party Philosophical Basis to remind ourselves that

- biodiversity is our main priority, followed by
- reducing greenhouse gas emissions from land (e.g. peat restoration)
- greater food self sufficiency and biological sequestration (e.g. forestry)
- timber and fibre and finally
- Biofuels

We have also had to critically examine the way that we will manage some of our priorities, which in turn, impact on other Green Party policies. In particular, we have had to modify our approach to forestry and biofuels. We think that even though the Agriculture and Food policy is new, that we cannot afford it within the context of the land that is available to us - and the Party needs to have this conversation.

We have consulted with colleagues in the Green Party at each major stage of the development of this draft policy. The general thrust of the policy was broadly accepted at the autumn 2021 conference, where it was submitted as a Draft Voting Paper. The LUPWG acknowledges that further consultation is required, including outside of the Party before the policy is brought to conference as a Voting Paper. Many other organisations are starting to look at this issue and we feel that we can gain considerable insight by talking to them. During this journey, we have also identified a number of issues relating to Green Party policy that we wish to develop, in consultation with other policy working groups.

The work we have done to date is framed within the context of the UK - because the data is collected at a UK level. However, one of the next stages for the policy working group will be to explore ways of using the data at regional (which could be bioregion, catchment or administrative) and local level. We also need to consider how a bottom up/community approach can practicably interface with the top down strategic need to control land use.

This document is long - it contains our detailed analysis. We invite everyone to read the first 4 chapters to get a feel for what we have been doing…. and hopefully the more technical aspects of the background paper will be a useful reference resource for those interested in particular aspect of land use policy. For those who want to better understand the land use changes being proposed, please see DVP Land Use Change Scenario Summary.

And finally, we are a friendly and accessible group - this work is hard and we welcome input and suggestions on how we should move forwards.

2. INTRODUCTION

The Green Party Land Use Policy Working Group's mandate came from a decision made at Policy Fest 2020, to create and trial a draft dataset showing the area of land in the UK, broken down by land-use category. Since then the Policy Working Group has worked through the implications of current land use, within the context

of Green Party existing policy and the Philosophical Basis. We have consulted widely at each major decision point. We are now putting a Draft Voting Paper (DVP) to the Autumn 2021 Conference.

This background paper has been prepared to accompany the Land Use Policy Working Group's Draft Voting Paper Spring Conference 2022. It provides detailed evidence supporting what we propose and supports our proposed major overhaul of the Land chapter for the Policy for a Sustainable Society[1] and changes to other policies that already exist in this broad policy area. The background paper is maintained by the Land Use Policy Working Group; it contains the rationale for the Draft Voting Paper, details and references to the sources we have used in creating it and conversations we have had along the way. Its aim is to enlighten you about the journey we have taken and demonstrate that this policy has been created from robust and tested thought and sources. More information can be found on our Green Space.

3. LAND USE: CONTEXT

Land in the UK has been used to support people, but also to restrict people, impoverish people, and as a route to amassing great wealth. It is the theatre we live in, it is our life support, physically and emotionally. The UK is suffering a severe shortage of land. As a society we can't afford to let its use be determined by the free market the way we have in the past, and we continue to do. Because it is the key to our existence, we need to critically examine how to live within its means, whilst respecting that without a rich biodiversity, the land will fail and that we have a climate emergency, and that land is also key to combating climate change.

Historically, the ownership of land in Britain has been dictated by the sovereign; in effect it has been given away for favours to the Crown and is therefore distributed more in line with historical acts of aggression and greed, than in a way which leads to wise stewardship of its characteristics and benefits.

Over the centuries, in the rush to benefit financially from land, the unintended consequence has been a war on wildlife, and people have been denied access to their common right through the law of trespass. People in England have now been denied the right to roam. Wildlife of all kinds has been catastrophically reduced by eliminating species and reducing to low numbers the common species that remain. This has happened systematically over the centuries, so that we have no conception of the abundance that was here, each generation seeing a decline.

We have reached a point where we have a land availability crisis. Our analysis clearly shows that we are currently using resources as if we have about 4x the land

available to us than we do have. This raises questions not only about management practises, but also about whether we should aim to be, on balance, self-sufficient, or to accept that we will be a net importer of resources, and if so, how much do we import? These issues are discussed further into the background paper and we describe how we have chosen our assumptions.

4. APPROACH

Our approach, through a systematic analysis of current land use and its implications, particularly for biodiversity, food production and greenhouse gas emissions (but see below for more detail on priorities) does not change the status quo for most people; people's dwellings would not be affected and most agricultural land would continue to be farmed, although there will almost certainly need to be some changes in practice.

1. Looking to the Philosophical Basis as a guide

The stark reality of our initial analysis presented us with unexpectedly difficult conflicting priorities as we realised that many of the adopted Green Party policies assume independently that they have access to the same land, and that we were unlikely to be able to accommodate all of them. Some sort of prioritisation was required.

To try to resolve this conflict we decided to turn to the Philosophical Basis as a guide. We undertook an analysis of what we thought the Philosophical Basis was telling us about Green Party priorities and a consultation of members (albeit with only a small engagement) confirmed approval for this approach and its outcomes. This priority is discussed under the relevant headings below, but essentially, the Land Use Policy Working Group took its mandate as being to model a use for land in the UK that prioritises biodiversity above all else; reducing carbon emissions (e.g. peat restoration), followed by greater food self sufficiency and increasing biological carbon sequestration (e.g. forestry), then using land for timber and fibre and, lastly, using land to produce biofuels. Our modelling suggests that Green Party policies, as adopted, and using this priority order, leave only a small amount of land for energy production as a primary use.

In summary, we determined that we could accommodate our current priority of reversing biodiversity loss; we could mitigate carbon dioxide in the atmosphere as per our proposed policy through restoration of peat bogs for example; we could achieve our objective of greater food self-sufficiency and absorb enough carbon dioxide as per our policy.

However, it is at this point we run out of land for the priorities that exist in adopted Green Party policy, which include for example, timber production largely used for building, biomass and for natural fibres for such things as paper manufacture. There is only a small amount of land left that can have energy

production as its primary use. Clearly these conclusions are problematic, so the next step was to think about how we might reduce our use of, for example, timber, whilst maintaining our top level priorities. It also led us to conclude that land use must be valued first for its service to our priorities, rather than purely for economic gain (though the two are not mutually exclusive).

The implications of this and the changes we propose in the Draft Voting Paper are outlined and supported in the chapters that follow.

2. How we should use land to meet priorities in the Philosophical Basis

All land use change results in changes to emissions from that land. In this section we look at the overall impacts of the land use changes proposed. All of these discussions refer to the **primary use** of land. For example the primary use of land may be urban, but a secondary use could be Solar PV where the panels are placed on the buildings. The policy on primary land use will be found in the Land Use Policy chapter of the Policy for Sustainable Society and the policy on solar farms (as a primary use of land) may be found in the Energy chapter of the PSS.

We also identified 2 cross-cutting themes which we felt did not fall under any particular headings, but were a priority. These are resilience and increasing human health and well-being.

1. Priority 1: Biodiversity (including Marine and Coastal)

Having accepted that our Philosophical Basis would underpin the Land Use policy, biodiversity, in terms of species diversity and abundance, emerges as the Green Party's policy priority. This means that we have needed to ensure that there is sufficient land allocated either as primary or secondary use to achieve the Wildlife and Habitats Policy Working Group's policy outcomes. We have worked closely with them to ensure that our policy supports their ambition and that our policies are coherent.

2. Priority 2: Reducing land emissions (e.g peatland restoration)

The Green Party has a policy for the UK to be a net zero emitter of greenhouse gas emissions by 2030. This requires very large reductions in emissions in all sectors of the economy (as defined by the Climate Change Committee [30]). The use of land is very important in this regard. It is currently a net emitter and we have ambition to change this to a net sequesterer of carbon. The use of land for agriculture is also a net emitter, and emissions from this sector must be substantially reduced.

3. Priority 3=: Greater food self-sufficiency

Food and farming

Land held for agriculture would most likely continue to be used for agricultural purposes, though a change of practice is likely to be required particularly where agricultural land falls on peatland. Where it is clear that the Common Good would be for the peatland to be restored for carbon sequestration or managed in a

different way, determinations would be made according to a local plan, derived from the land use framework. However this is likely to impact most on hill farming on peatland and peatland used for arable and horticultural purposes on the east of England. There is more on this is the thematic discussions 6.4 Climate Change Mitigation and 6.15 Peatland, below.

4. Priority 3=: Biological sequestration (e.g. forestry)

An important part of addressing the climate emergency is the sequestration of carbon. This can be done by planting more trees, leaving existing forests in place as well as restoring peatland, saltmarsh and other wetland, for example. It can also be done by harvesting products from the land (e.g. timber) and using it in buildings so that the carbon is not returned to the atmosphere or oceans in the carbon cycle. All of these approaches to the Climate Emergency require more land to be put aside in the UK.

5. Priority 5: Land for timber and fibre (biotic resources)

The UK is not self-sufficient in the biotic products it uses and many of the products we currently use are reliant on fossil fuels (e.g. plastic), with their associated CO_2 emissions. Some biotic resources are imported (e.g. cotton); their production has ecological and climate impacts in the exporting countries. Our policy is to increasingly use natural materials grown in the UK, such as wood and hemp. For their production, this will require more land allocated in the UK than currently. We also need to reduce our consumption of such products, to allow the UK to become a net zero importer.

6. Priority 6: Land for biomass (energy)

There are ways of using energy crops to displace the great reliance we currently have on fossil fuels. One example of this is the Drax power station, which uses wood pellets imported from abroad. This, and much of the current use of biomass for energy in the UK, is not sustainable and it will need to be phased out or limited. Our scenario has tried to mitigate the shortage of land for energy crops, but it is inevitable that we will have to reduce our energy demand and examine whether we can meet our needs from other sources of energy, such as wind and solar power.

7. Other politically relevant major land use categories: The built environment, military, mining and waste

The built environment occupies about 7% of the UK land area. Land occupied by the military, mining and landfill together, are only about one third of a percentage. There are Green Party policies dealing specifically with these issues, but from a land use perspective, the amounts of land concerned are insignificant when set in the context of some of the much larger changes in land use required to meet our priorities.

3. Cross cutting issues

Our analysis of the Philosophical Basis identified 2 other priorities, which the Land Use Policy Working Group considered as cross cutting issues - resilience and

maintaining human health and wellbeing. No specific policy changes have been made relating to these. Our proposals will significantly enhance UK resilience to climate change. Some of our calculations required us to make assumptions about the food we eat and our calculations are based on the NHS Eatwell Diet (see below), which would if followed improve the nation's nutrition. These principles have been taken into account in shaping our policies.

5. BACKGROUND PAPER, STRUCTURE, DEVELOPMENT AND MAINTENANCE

This background paper is held in the Land Use Green Space [3].

References and notes are indicated by a number in brackets – e.g. [11] – and listed fully at the end of the document.

Modifications: In view of the mounting ecological challenges, and as the Policy Working Group undertakes further research, it will be necessary to update this document. The first issue of the Background Paper on the members' web site will be associated with the first Draft Voting Paper (DVP) on land use (autumn 2021). A second issue will be in January 2022, associated with the DVP to spring conference 2022.

Subsequent to the passing of the Voting Paper (VP), this document is expected to be maintained and released for each Green Party conference to reflect updates in Green Party policy, further research conducted by the Policy Working Group or emerging science or debate, for example. Changes will be recorded in a table in this section and will be put to a meeting of the LUPWG at conference.

Timeline: This is the aspirational timeline for the development of policy and this accompanying background paper:

- Spring 2021 Conference. Enabling motion. Completed.
- Autumn 2021 Conference. Propose the Draft Voting Paper (F motion) for discussion at a conference workshop along with a draft Background Paper. Completed.
- Spring 2022 conference. Re-propose Draft Voting Paper after further consultation. Completed.
- Autumn 2022 Conference. Propose Voting Paper (B motion) with first issue of the Background Paper for discussion at conference workshop and for vote to become new policy at plenary
- Subsequent conferences. Changes to policy may be proposed via E motions or preferably C motions (accredited). Changes to Background Paper for each conference are also anticipated.

1. Abbreviations and Symbols

All abbreviations are introduced on first use in this document with both abbreviation and meaning. In subsequent uses, only the following abbreviations will be used. All abbreviations used in this document are listed here.

Abbreviation	Meaning
~	Approximately (mathematical symbol)
ADBA	Anaerobic and Digestion and Bioresources Association
AUK	Agriculture United Kingdom
BPS	Basic Payment Scheme
CC	Climate Change
CCC	Committee on Climate Change
CEPWG	Climate Emergency Policy Working Group
CLC	Corine Land Cover
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent. Other GHGs are weighted according to their CO2 equivalent
DEFRA	Department of Environment Food and Rural Affairs
DVP	Draft Voting Paper
EBA	European Biogas Association
ELMS	Environmental Land Management Scheme
EM	Enabling Motion
EPM	Energy Policy Model.
EPWG	Energy Policy Working Group
EU	European Union
GHG	Greenhouse Gas
GPEW	Green Party of England and Wales
ha	hectare
k	thousand
kg	kilogramme
kha	kilo hectare
km	kilometre
km² or km2	square kilometres
kWh	kilowatt hour
LCM	Land Cover Map
LU	Land Use
LUPF	Land Use Policy Framework
LUPWG	Land Use Policy Working Group
LVT	Land Value Tax
LWS	Local Wildlife Sites
m	metre
m2	square metres
Mha	Mega Hectare
MPA	Marine Protected Area
Mt	Megatonnes
MtCO2	Megatonnes of CO2
MtCO2e	Megatonnes of CO2 equivalent
N2O	Nitrous Oxide
NGO	Non Government Organization
NPPF	National Policy Planning Framework
OFMH	Organic Farm Management Handbook
p	person
pa	per annum

PDC	Policy Development Committee
PFE	Public Forestry Estate
PfSS	Policy for Sustainable Society sometimes referred to as PSS
PSS	Policy for Sustainable Society. Green Party policy set which includes the Energy Policy
PV	Photovoltaic (as in solar panels)
PWG	Policy Working Group
RoPS	Records of Policy Statements
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SOC	Standing Orders Committee
SOCC	Standing Orders for the Conduct of Conference
SPA	Special Protection Area
sq km	square kilometre
sq m	square metre
SSSI	Site of Special Scientific Interest
t	tonne
TWh	TeraWatt Hour
UK	United Kingdom
UKCIA	UK Cannabis Internet Activist
UKFWC	UK Forestry and Woodlands Council
UN	United Nations
VP	Voting Paper
WRAP	Waste and Resources Action Programme
y	year

2. Definitions

Land Use Policy Framework
This is an Excel spreadsheet with several tabs. It is available for anyone to use to model the impact of their policy, for example. The spreadsheet has one tab which is a template and it is this that can be manipulated by any user. For example, it was used as a basis for the consultation with other policy working groups and interested individuals; by the Land Use Policy Working Group to model the implication for different ways of changing our land use (**land use change scenarios**).

The spreadsheet also has a tab that shows current land use - referred to as **land use base** - and one showing land use change. For further information see the section Land Use Policy Framework.

Land Use Base
This is the tab in the **land use policy framework spreadsheet** that contains the sheet showing how the land in the UK is currently used (in Mha).

LU Change
This is the sheet in the spreadsheet where a land use change (for example for a particular policy) can be input and trialled. Consequent changes can then also be

modelled. So if you wanted to cover 50% of the UK with woodland, you could see how much land there would be available for other uses. All data is in Mha.

Land Use Change Scenario
This is a ballpark and overarching scenario, proposing how the use of UK land should change. It is one solution that the Land Use Policy Working Group is proposing could be adopted as policy in order to move from how we use land NOW to how we might use land land use in a sustainable way. The LU Change scenario defines the number of kha which should move between each of the LU Base categories over the transition period. See the Land Use Change Scenario section for further details.

The changes we have proposed can be tracked from current land use to proposed land use by referring to the Land Use Policy Working Group's **land use policy framework spreadsheet** (LU Change tab).

Enabling motion
An enabling motion outlines the scope of what a policy working group proposes in its subsequent policy and has to be approved by conference. Our enabling motion was approved in spring 2021.

Draft Voting Paper
Our first draft voting paper broadly explained our policy direction, but left significant detail to be explored via further consultation. It didn't need to go to conference for approval, but it did have to go to conference for discussion, which happened at a workshop in autumn 2021. Both the policy working group and Policy Development Committee believe that further work is required and the PWG will re-submit a revised Draft Voting Paper at the spring 2022 conference.

Voting Paper
When we're happy with our policy, it will go to conference as a Voting Paper, to be debated and voted on. If it is approved, it will become part of the Policy for a Sustainable Society and replace the existing Land Chapter.

6. THEMATIC DISCUSSIONS

More information on what is included in the categories of land use mentioned in these thematic discussions can be found in the Land Use Policy Framework and Land Use Change Scenario.

1. Adapting to climate change

The UK is already beginning to see warmer, drier summers and warmer wetter winters [64]. This trajectory will continue, having more of an impact on the south and east than in wetter areas in the north and west. Increased flooding, including that caused by sea-level rise, may lead to substantial losses in crop production in low-lying agricultural areas and may contribute to compaction, waterlogging and erosion of soil. Wetter autumns and winters will threaten agricultural production by adversely affecting the timing of land-management operations.

Production in cool, wet upland areas may benefit from warmer and drier conditions, while production in lowland areas may fall.

How impacts will be felt in the UK within the timescale of this policy is not clear and there is also little clear evidence of existing impacts in the UK agricultural and forestry sectors that can be attributed directly to climate change [29]. Because of the uncertainty, impacts of climate change on agricultural yields have not been taken into account in the LU Spreadsheet tool.

By 2030, the impacts of climate change are likely to be felt more as changing weather conditions; severe weather events will increase economic shocks. Adapting to climate change is a policy gap in the PSS and Policy Development Committee have been notified.

2. Biodiversity, including rewilding

Our Land Use proposals prioritise diversity and abundance of all living things. This is set within the context of the UK having one of the most depleted biodiversity scores in Europe. According to the report "State of Nature 2019" by the UK National Biodiversity Network[63], in the last 50 years there has been a 13% decrease in the abundance of 696 terrestrial and freshwater species. A 6% decrease in the last ten years alone. The major pressures on the UK's nature are identified as agricultural management, climate change, urbanisation, pollution, hydrological change, invasive non-native species and woodland management.

To reflect this, as well as the Wildlife and Habitats PWG's concerns (see W&H Voting Paper [66] and background paper), and other opinions that may be politically valuable, the LUPWG identified some categories of land use which prioritise biodiversity and abundance. These categories include hedgerow and scrub (which is mostly hedgerow, but also includes heather, bushes and some grassland), watercourses and wetlands (40% of global biodiversity relies on these freshwater habitats), coast and inland rock and peatland (which is dealt with separately below). In addition, we have proposals to change the primary use of some grassland (including coastal grazing and floodplain marsh, lowland calcareous (chalk or limestone) grassland, lowland dry acid grassland, lowland pasture that is not meadow, wood pasture, upland calcareous grassland, northern hay meadows, lowland meadow and pasture, purple moor-grass and rush pasture, semi natural

grasslands) woodland and forestry to enable a reversal of the loss of natural grassland and woodland (including a change to the type of woodland) to enable reversal of the loss that has taken place. N.B calaminarian grassland (a unique grassland type adapted to grow on mining spoil) will be maintained at its current area.

In brief, land use policy proposals are to increase primary land use for hedgerow and scrub to almost 4 times its present area; a 50% increase for watercourses and wetlands, more than a 6 fold increase in area for meadows, nearly a doubling of broadleaf woodland and a 3-4 fold increase in land allocated to orchards (and restoration of almost all of peatland, see below) see Land Use change scenario. Many of the solutions for increasing biodiversity and abundance rely on management practises that create land suitable for wildlife rather than just allocating land for a particular use.

The Land Use policy does not intend any significant changes to marine and coastal habitats. The area of land concerned is just over 1% of UK land cover. That is not to say that we do not regard these areas as important. We know that inappropriate coastal defences that have been designed to stop erosion and otherwise change the coastline are detrimental to nature. The Environment Agency with local partners prefers natural coastal realignment and in some places, where an assessment has been made that this is the best or only solution, this practice is being introduced in the UK. For example, removal of shingle banks or allowing them to fail where they protect agricultural land allows the land to revert to salt marsh and/or freshwater marsh without the bank [62].

Our proposals exclude increases in land area for designated categories of land such as Sites of Special Scientific Interest, which are covered in the Wildlife and Habitats policy. From a land use perspective these would be better made according to a local plan, derived from the land use framework, which ensures the existence of a policy of wildlife corridors and mosaics of land which encourage biodiversity to thrive.

Furthermore, our proposals exclude land specifically for rewilding. Whilst this is a politically relevant concept both the W&HPWG and the LUPWG believe that rewilding is better dealt with through management of land available to wildlife, rather than allocating a specific target to it. The Green Party Wildlife and Habitats Policy Working Group accepts the ambitions set by Rewilding Britain [67] - a core rewilding of the UK representing 5% of its area and a further 25% of land and marine habitat within a broader mosaic of habitats such as low-impact mixed forestry, harvesting of natural products, nature-based tourism and high-nature value grazing. The Land Use Policy Working Group believes that its proposals would achieve this objective.

3. Biotic resource including biomass

The current challenge is that we use raw materials (see policy [1] NR101) that:

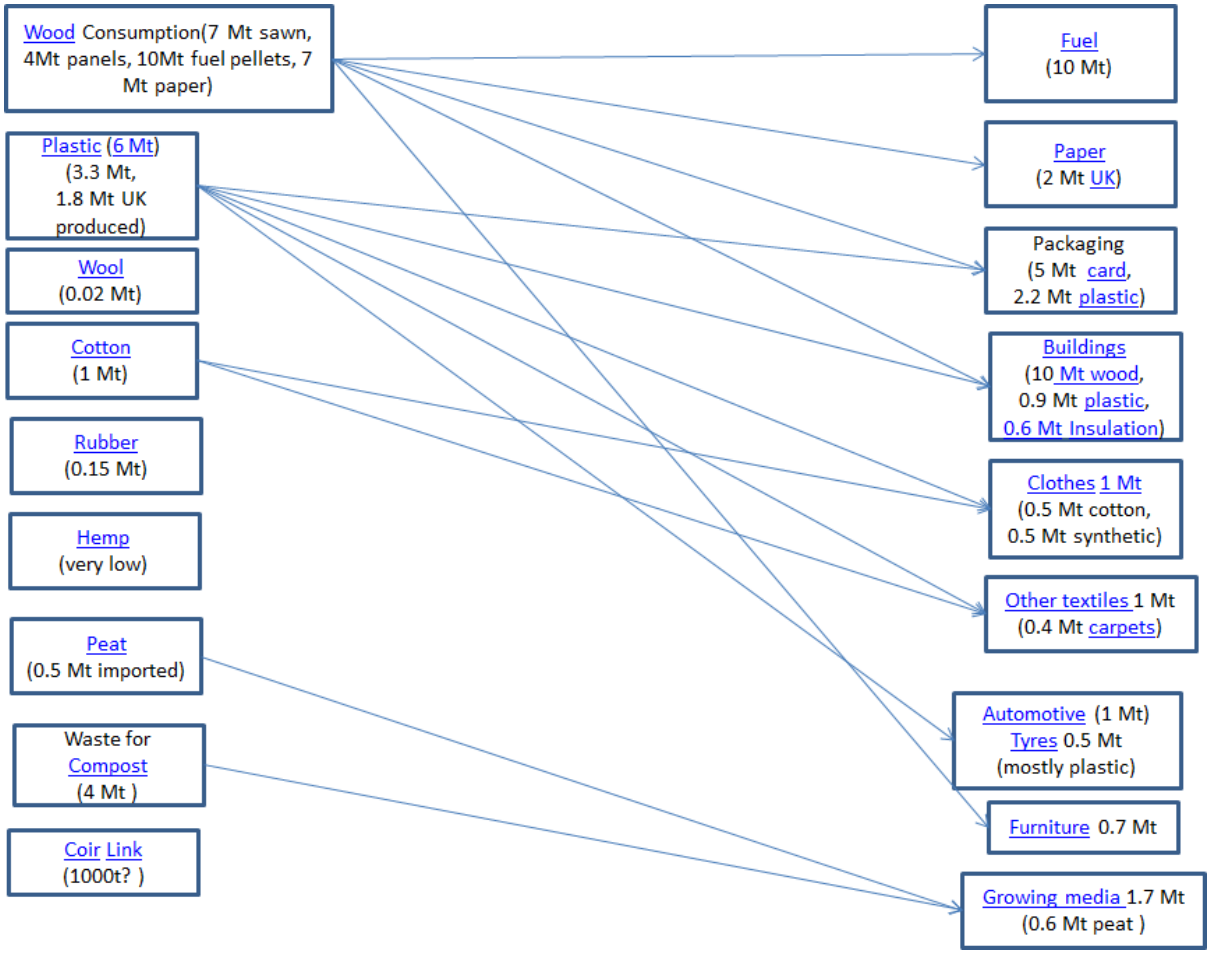
- are non-renewable, made from non-sustainable fossil fuels and other products
- are imported natural resources (such as cotton and wood products) produced in non-sustainable ways in their country of origin
- are natural resources produced in the UK, but that are not sustainably produced or, at current consumption rates, require more land area than is currently available in the UK
- lead to waste streams to landfill and incineration, because we do not have a circular economy for them

Moving towards a sustainable use of raw materials, in the context of biotic resources, requires consideration of current and future use of biotic resources and use of non-sustainable non-biotic resources that could be replaced by sustainable biotic resources.

The general approach to this is:

- a large reduction in usage of such raw materials
- a large increase in UK land area for biotic raw materials such as wood, hemp and flax
- a large reduction in imports of such raw materials
- a very large reduction in fuel from such raw materials with focus on energy from wind and surplus stored as hydrogen
- a very large reduction in plastic packaging with focus on wood based packaging
- a large reduction in building new reinforced concrete frame buildings with a focus on timber framed buildings
- a very large reduction in synthetic fibres for clothes and textiles with focus on natural fibres
- a large reduction in lubricating oils with a focus on bio-based oils rather than fossil fuel based oils
- to eventually achieve net-zero imports of such raw materials and in the meantime to ensure that what we do import is certified as sustainable/organic

While these are worthy aims, we need the analysis of the current situation, and whether there is any possibility that the UK could achieve these ambitions. In this context of this document, the analysis is with particular attention to the land use implications. The following diagram gives an overview of current use of such materials (excluding oils).



In the diagram, the boxes on the left are the raw materials and the boxes on the right are the end products. The arrows give an indication of which raw materials are used in which end products.
Note that this diagram comes with a warning about accuracy, so the Mt (Megatonnes per year) figures should be taken as very approximate. It will be possible to improve this diagram over time, but the underlying information is hard to come by.
The blue underlined links are only available from the underlying powerpoint diagram (Biotic Resources.pptx) which is held in the diagrams folder of [3].
It is clear from this diagram that by far the largest challenge to address is wood products (currently ~30 Mt/year), followed by plastic (~6 Mt/year), cotton (~1 Mt/year) and peat (~0.5 Mt/year).

Wood
Currently UK wood production is at ~10 Mt/year from ~1.5 Mha of harvested woodland. We intend to target between double and triple the area of the UK assigned to harvested woodland (see Land Use Change Scenario). This would produce ~25 Mt/year of wood products. Note that this will take considerable time for the land use change and the trees to mature

The general approach to this is:

-

- the use of wood specifically for fuel will be reduced from ~10 Mt/year to ~2 Mt/year. This will be supplemented by waste wood (eg from saw mills)
- paper use can be halved, especially helped by declining use for newspapers and more recycling to get another ~1 Mt/year reduction
- packaging can be halved. But we primarily want to remove plastic packaging and so reduction of wood in packaging will not be so great. Perhaps ~2 Mt/year reduction.
- wood for buildings and construction needs to be held steady or slightly increased. There is potential for reducing this in some areas (eg more re-use of materials and more refurbishment), but other areas (eg more timber-framed homes and wood-based insulation for retrofits) will increase the requirements
- clothes/textiles. There is some potential for wood-based cellulose-based feedstock for bio-polyester, but it is not clear at this stage whether it will be preferable to grow specific crops, such as sugar beet, for this purpose. So for the moment this usage is expected to be relatively low (see below on clothes)

From this very high level analysis, it does appear that the UK could move to net zero wood imports (see FR800 in Forestry policy) with production of ~25 Mt/year of wood and consumption of wood-based products and fuel of ~25 Mt/year, as per the Land Use proposed .scenario.

Plastic
The general approach to this is:

- to substantially reduce the use of plastic in packaging by ~2Mt/year. As explained above, this is in the context of a major reduction in packaging and displacement of plastic by wood-based packaging
- to investigate the replacement of plastic use in buildings, which is currently primarily for window/door frames and pipes, with other products, develop products that last longer and are more recyclable and thus perhaps halve new plastic entering the system.. This is assumed to lead to a ~0.5 Mt/year reduction in plastic
- to target a reduction of 90%use of plastic in synthetic fibres, which currently run at ~1 Mt/year for clothes and textiles. A sustainability challenge here is the amount of micro-fibre plastic particles released from washing clothes. See below on cotton and clothes for further discussion on this.
- To target a ~0.5 Mt/year reduction in the use of plastics for the automotive industry - half of it for tyres. A large reduction in this will be achieved by reducing the number of cars on the road and greater recycling.

From this high level analysis, it does appear that the UK could substantially reduce its use of plastic but further work is required to remove it altogether, if this is desirable.

Cotton/clothing/textiles
The general approach to this is:

- achieving a large reduction by buying half as much and using it twice as long. This could reduce current consumption down from ~2 Mt/year to ~0.5 Mt/year
- we still see some role to play for synthetic fibres, largely recycled, at ~0.1 Mt/year
- cotton to still play a part, but it needs to be sustainable/organic. About 1% of world production (~25 Mt - see [37]) is currently organic (~0.25 Mt - see [36]). But a larger percentage is sustainable with a wider definition of “Preferred Cotton” (see [39]) We can target ~0.1 Mt/year sustainable cotton goods used in the UK
- that we propose to reduce the headage of sheep and thus the potential for wool production, but this can still produce ~0.04 Mt/year, which is a small but worthwhile contribution. See Land Use Change Scenario for more details
- to make another small contribution from wood based polyester - 0.05 Mt/year. This makes little difference in the overall harvested woodland area required. A better understanding is required of conversion factors from wood to bio-polyester
- to fill the gap required by deriving an additional ~0.21Mt/year to be made up from hemp, flax(linen) or bio-polyester (see [38]). We use the yield of hemp as an example of what can be achieved. This has a yield of cloth and textiles at ~0.35 t/ha (after processing). So this has a land use requirement of ~0.6 Mha. Note that this also produces another 0.5 Mt of hemp hurds (woody inner core of hemp stalks) which can be used as building materials and thus less reliance on wood products.

Lubricating oils
The general approach to this is:
- to assess how much current uses of such oils is still required. A report for the Department of Environment, Food and Rural Affairs(DEFRA [47]) shows a UK use of ~800 kt/year (note: we believe that there is an error in the column heading in figure 2.3) in 2000 because more recent reports (see [57]) show a decline since the year 2000 to under net 400 kt in 2019. Reliable current information is hard to come by, and future projections are speculative.
- to considerably reduce use by different usage. This will primarily be by the introduction of electric vehicles rather displacing internal combustion engine vehicles and their use of lubricating oil. So this may halve current requirements to ~200 kt/year.
- of this, some ~100 kt/year may continue to be fossil fuel based (e.g. for high temperature use where bio-oils may not be suitable). Over the years of transition of land use, the challenges of having a continuing small petro-chemicals industry for plastics and oils will need to be assessed
- another ~100 kt of such oils is assumed to come from biotic resources. With a yield of ~3t/ha this requires ~35 kha (of category 5.5 in the Land Use Change Scenario) .
- there can be a further assessment of recycling of such oils rather than using them as fuels as part of the waste stream
- there are also currently 29 million litres of cooking oils used for bio-diesel (see [58]) in the UK which corresponds to ~10 kha of oil crops.

From this high level analysis, it appears that the UK could substantially reduce its reliance on fossil fuel-based oils, with a requirement for ~50 kha UK land for a sustainable source of non-food oils. Further work is required to remove it altogether, if this is desirable.

A short note on hemp (from ([46]):One tonne of hemp could comfortably be grown on 0.2 hectares of agricultural land (~0.5 acre). A tonne of hemp would produce at conservative yields of 15%, 150 kg of line or high quality fibre. We should expect losses of 35% in hackling or carding, 5% in yarn production and a further 20% in boiling and bleaching the yarn to accept dye. This would leave us with 73 kg of fine hemp yarn producing 182 square metres of 400 gsm (jeans weight) fabric. In addition, 100kg (10%) of shorter tow fibres would be generated which could be used for paper making or geotextiles and 500 kg (50%) of hemp hurds which would make excellent building materials or paper or can be sold as animal bedding. Whole crop utilisation is obviously beneficial from both an economic and an environmental point of view.
A short note on use of wood in buildings:Timber framed buildings are estimated to require ~0.1 t of timber per square metre of floor area, and thus ~10 t would be required per new home (see [84] p31 in MtCO2e) of an (slightly higher than) average 100 sq m. With current home building rates of 200,000 per year, this would equate to ~2 Mt of timber.
The GPEW GND proposals require the deep retrofit of ~2 million homes per year. If this is primarily achieved with 1t of wood per home (10% of new build), then this would require another ~2 Mt/year of wood.
There would also need to be an expansion of the use of wood in non-residential buildings and retrofitting of non-residential buildings.
In the context of the ~10 Mt/year wood for buildings, this ~4 Mt/year for new homes and retrofit does look a possible allocation. Another way of looking at this is that the 4Mt of wood built into homes is, at least for decades, sequestering 7 MtCO2 which all helps to achieve net zero.
Yet another way of looking at this is that a reinforced concrete frame of a building emits ~35 tCO2 per home, with current steel and cement production methods, vs a timber framed home that sequesters ~17 tCO2 (see [84] p31 for ~10 MtCO2e).
Further analysis of embodied emissions and sequestration of CO2 is in [40].
This report notes:

- the split of use of sawn timber and wood-based panels for housing, other buildings and repairs
- the advantages of timber-framed buildings in terms of lower embodied carbon and higher sequestration
- small cost differences in approach

Conclusion:

Coming to firm conclusions in this area is hard. But it appears that the general direction of travel is possible to identify,with indicative increases and decreases of supply and demand of biotic resources achievable eventually within UK land area. Any land use change to accommodate this approach will

take some time. Course-corrections can be applied during that time, as technologies and costs of different approaches firm up.

4. Climate change mitigation

There are a number of implications of the land use change for greenhouse gas emissions and the climate emergency. Land use categories from the Land Use Policy Framework are examined in turn and related to CCC emissions categories (see [30]). For GPEW policy there are two main dates to focus on. One is 2030 - as this is the date that the Green Party targets to require zero emissions for the UK as a whole (policy CC015). The second is the change in emissions after the full land use change has taken place and transition impacts have occurred. The first of these dates is addressed in more detail in the Energy Policy Model ([48]). The second of these is addressed more qualitatively here and in the Land Use Change Scenario.

- Forest and woodland (category 1)
- Peatland (category 2.4)
- Plantation (category 3)
- Grassland (category 4 and 5.01)
- Arable farmland (category 5.02 to 5.11)
- Built environment (category 8)
- Landfill (category 9.2)
- Solar PV farm (category 9.3)

Taking these GPEW land use categories one at a time:

Forest and woodland / Current. The current forest sink of 18 MtCO2/year ([30]) is weakening with the ageing profile of existing woodlands and the decline in planting rates ([30] fig 7.8), with an annual average of 9,000 hectares planted between 2008 and 2018. The CCC ([65] fig 2.9) shows a decline in yearly sequestration from existing forests and woodlands of ~4 MtCO2e by 2030. [65] Fig 2.9 shows existing broadleaf and conifers reaching near equilibrium in the second half of the century - i.e. neither emitting nor sequestering. The CCC Land Use document [59] contains additional detail.

Forest and woodland / Additional. The Land Use Change Scenario proposes a land use change of ~2.5 Mha from Rough Grazing, Pasture and Grouse Moor categories to Forest and Woodland categories over 20 years. In general more trees results in more carbon sequestration over the long term. But in the short term, by 2030, the carbon absorbed by the trees is likely to be outweighed by changes to soil carbon due to the change from grassland, and the albedo effect (forests are darker than original grass). This is quite hard to calculate but the Energy Policy Model (EPM) (see [48]) estimates ~3 MtCO2e/year extra warming effect. In the longer term forests can sequester 20tCO2/year/ha if managed well and the biomass is sequestered. So there is the potential for 60 MtCO2e/year sequestration from this change of land use once the land use transition has taken place and the trees are growing rapidly.

Peatland. There is currently ~3 Mha of peatlands in the UK, most of it requiring restoration. Due to the state the peat is in, it is emitting ~25 MtCO2e/year. It takes ~15 years for peatland after it has been re-wetted to start sequestering carbon and then follows a small sequester of CO2e/year (EPM [48] ref [315]). So this will not be quick. ~0.2 Mha of the peat to be restored is prime agricultural land and will require carefully thought out targets and policies to avoid unforeseen outcomes. The Land Use Change Scenario proposes that all of the current peatland is restored in 10 years, but some will still be emitting and the rest will become a small sequesterer, so eventually UK peatland as a whole may be a small sequester. By 2030, only a modest reduction in peatland emissions will occur, perhaps reducing to ~22 MtCO2e. Note that the CCC assumes that peatland immediately stops emitting once restoration is done.

Plantation. The Land Use Change Scenario proposes a land use change of ~0.4 Mha from Rough Grazing category to Plantation categories. Richards et al ([60]) suggests that as this land use transition takes place, there are appreciable net emissions until a new steady state is achieved after ~30 years - but most of these emissions are in the first 10 years after the land use change. This analysis just concerns the land use emissions from the land use change and not the potential benefits of the plantation products (see Energy and Biotic resources sections) in driving down other emissions. The EPM (see [48]) using the Richards et al numbers estimates that in 2030, this land use change will emit ~1 MtCO2e/year.

Grassland. This currently acts as a considerable sequesterer of carbon (~9 MtCO2e/year).This is split between permanent grassland and rotation between grassland and cropland - that is when land is rotated to grassland it sequesters carbon and when rotated back it emits the carbon again. The Land Use Change Scenario proposes to reduce permanent grassland and pasture on rotation from ~12 Mha to ~4 Mha. In parallel with this is very large reduction in area of grassland. There may also be an improvement in management techniques resulting in more sequestration per hectare, but policy/evidence for this is very weak . In 2030 there is expected to be little change in grassland sequestration. In the longer term it is expected that grassland will reach a steady state with neither emissions nor sequestration. There is very weak evidence for this; we will look out for further evidence on this.

Grassland / Cattle and Sheep. There is currently ~10 Mha of grassland in the UK for cattle and sheep. These cattle and sheep emit methane, via enteric fermentation, ~30 MtCO2e/year. It is proposed to cut the amount of grassland for cattle and sheep by 70-80%. The numbers of cattle and sheep are to be cut by a similar percentage resulting in a similar percentage reduction in emissions. But this only happens over the period of the land use change of 20 years. In addition it is assumed that methane per head is reduced (not a land use issue). So eventually enteric fermentation may reduce to ~5 MtCO2e/year, but by 2030 will still be at ~13 MtCO2e.

Arable farmland / Soils / Agriculture. UK soils are a net emitter of ~12 MtCO2e /year of greenhouse gases. This is N_2O from application of fertilisers (artificial and otherwise), grazing and histosols (from peaty soils). The changing use of fertiliser

has an impact on emissions (see under Soil) as do fewer sheep and cattle, and their impact on the soil. The CCC ([30] in its 6th Carbon Budget Agriculture and Land Use, land use change and forestry, (page 13)) discuss the use of grass and legumes, cover crops and grass leys as methods of reducing N_2O - these are all consistent with GPEW agroecological approach. More work is to be done on quantifying this effect, but eventually considerable reductions of N_2O should be possible (~8 MtCO2e reduction) with changes by 2030 at ~4 MtCO2e reduction. More work is required to quantify this.

Arable farmland / Cropland. UK Cropland is a net emitter of ~10 MtCO2e /year of greenhouse gases due to land use change. Some of this occurs when grassland is rotated to arable land as part of standard rotation. In the Land Use Change Scenario, the land to be changed from grassland to cropland each year is proposed to increase considerably (more than 3 times). This will increase these emissions. Some of the emissions are believed to be proportional to the area of arable farmland. The Land Use Change Scenario being proposed increases Arable/Cropland from ~4.5 Mha to ~7 Mha. More evidence is needed on how effectively the agroecological farming practises promoted by the GPEW will sequester carbon and mitigate these increases. Nature Based Solutions (see [35]) suggest that by keeping the land covered by crops/residue at all times may result in sequestration of ~2tCO2e/ha/year. More analysis is required to determine how this scales to the ~7 Mha of arable land on an ongoing basis and how well such management practises as “no till”, perennials, cover crops and drainage are covered by policy. In 2030, the land that has changed use is likely to become an emitter of carbon in the short term, while the land that has not changed land use will continue to emit - so an increase of emissions is expected. Over the longer term the land is expected to get into a new steady state where it neither emits nor sequesters.

Arable farmland / Fertiliser Production. As explained in the Soil section, substantially less artificial fertiliser is proposed to be used once the land use changes have taken place (~25% of current usage). But the main reduction in emissions will come from producing fertliser using Green Hydrogen (eventually using just ~3% of available after Green Hydrogen production), rather than due to the reduction in its use due to land use policy.

Built Environment / Settlements. The emissions from settlements have been fairly constant at ~7 MtCO2e/year of land emissions for the last 30 years (not the emissions from use or construction of buildings). A factor that may influence this is the amount of land converted to settlements which is likely to increase the emissions. The CCC ([30]) assumes Settlement Land Use increases from 7% of the UK to 9% by 2050, whereas the Land Use Change Scenario retains this land use at 7%. Some of the Settlement emissions are from current land use (~2 MtCO2e). This is associated with newbuild disturbing the soil. But other Settlement emissions are from the change in land use from Forestry (~0.5 MtCO2e), Cropland (~0.5 MtCO2e) and Grassland (~3 MtCO2e). In the short term, there is considerable construction required for the Green New Deal infrastructure and so these emissions are unlikely to reduce by 2030. In the longer term, it may be possible to reduce these emissions.

Landfill. Landfill emissions are still very significant, but are not addressed as part of land use change, so are not included here. The changes to landfill emissions are not driven by the land use policies covered in this background paper. Further discussion of landfill is in the Landfill section

Solar PV farms. In the context of the other land use changes, the emissions from the change of land use to Solar PV farms is small. Solar PV farms are discussed further in the Energy section.

Wastes and Manure Management. This is currently running at emissions of ~8 MtCO2e/year. There are a number of factors that are likely to reduce this as land use change and associated management practises take place. The overriding reason is that these are no longer considered waste, but instead valuable inputs to agroecological farming methods. However, evidence is weak that the different handling of waste results in reduced emissions. Some of these emissions are due to the large numbers of cattle, pigs and poultry - with fewer cattle and poultry (but more pigs), there will be fewer emissions. Another factor is the use of extensive (vs intensive) agriculture with lower animal density that allows the manure to be absorbed by the soil as fertiliser. And lastly there is an ambition to increase the use of such wastes / manure treated by anaerobic digestion and thus better management of the greenhouse gases. It is difficult to quantify the effects of these measures but, pending further policies / evidence, it is assumed that these emissions will reduce to ~7 MtCO2e/year by 2030 and ~1 MtCo2e/year after land use changes and management practises have changed.

The impacts of the emissions associated with the land use change emissions, discussed above, are summarised here (all numbers approximate, +ve is emissions, -ve is sequestration):

CCC category	Now CCC (MtCO2e/ year)	2030 (MtCO2e/year	Long term (MtCO2e / year)	Comment
Peatland	+25	+22	0	
Enteric fermentation	+29	+13	+5	Cattle and sheep methane
Forestry / current	-18	-14	0	
Forestry / additional	0	+3	-60	
Plantation	0	+1	0	Not a CCC category. Represents emissions from Land Use category
Grassland	-9	-9	0	Grassland Land Use Change
Soils	+12	+8	+4	Includes fertilizer use, grazing and histosols

Cropland	+10	+22	0	Higher rate of land use change from grassland to cropland results in increased emissions
Fertiliser production	+4	0	0	Subset of CCC Industry category
Settlements	+7	+7	+4	
Wastes and Manure management	+8	+7	+1	
Total Land related emissions	+72	+54	-46	

Note that the categories are roughly how they are split by the CCC in their 6th Carbon Budget work ([30]). Current emissions are mostly taken from the same work.

5. Energy

Due to the climate emergency, there needs to be a major overhaul of how energy is produced and consumed in the UK. Some of this production involves use of UK land area and so is addressed in this section. Energy Policy is covered more widely in its chapter of the PSS ([1]) and the Energy Policy Background Paper ([27]).
So focusing on land use, energy production has potentially major impacts on land use in the following ways:

- biomass
- solar farms
- offshore wind
- onshore wind
- marine
- hydrogen
- pumped storage and hydropower

Taking each of these in turn:.
Biomass. Current GPEW policy has been based heavily on the work of the Centre for Alternative Technology and their Zero Carbon Britain reports. These reports, and thus GPEW policy, proposed extensive land use for biofuels requiring ~4 Mha of the UK (17% of UK) and yielding ~50TWh of bioenergy per year by 2030 and more thereafter (compared to UK current energy use of 2,000 TWh/year). While this does contribute to UK energy supply, it also led to conflicting requirements for UK land use with other policy proposals in the PSS ([1]). Due to the proposed prioritisation of land use (see priorities section), the land for wood for fuel is being scaled back (see Biotic resource section).

Instead of allocating ~4 Mha of the UK for biofuels, only 0.4 Mha (10% of previous) can be spared for this (see Land Use Change Scenario). This will yield just ~1 Mt of biomass/year for fuel, yielding ~5 TWh/year (primary energy) by 2030 but 2 to 3 times this bioenergy eventually. This biomass energy supply is supplemented by a

waste stream from other wood (and other sources such as logs in rural settings) deployed in the economy (i.e. wood from UK land not specifically allocated to fuel production - so not the concern of Land Use Policy - see [27])). There are corresponding proposals to change policy (see Energy and Forestry). To compensate for this loss of bio-energy, there has to be increased ambition for over-supply of wind power and storage of hydrogen (see below).

Solar farms. The Energy policy proposes the deployment of ~100 GW of solar PV in the UK by 2030 (compared to ~15 GW now). It is proposed that 75% of this is deployed on building rooftops. This is considered to be a secondary land use, and so does not conflict with proposed land use changes. 25% of Solar PV will be in solar farms (25 GW) of which ~7 GW is already deployed. 1GW of solar farm takes ~2 kha. So the solar farms require ~50 kha of land. This is a relatively small land use change in the context of the whole Land Use Change Scenario. There is potential for secondary use of this land.

Offshore Wind. By definition this does not take any land. The Energy Policy Background Paper ([27]) includes an investigation into whether such allocation of sea area is sustainable. This is based on work by the RSPB ([43]). For example Hornsea project 1 is quite spread out compared to onshore wind with 1.2 GW in 63 kha (Wikipedia) or 1 GW of offshore wind in ~50 kha. It is proposed to have ~85 GW of offshore wind ([27]) which will take ~4 Mha of sea space.

Onshore wind. We do need to calculate the area of land to be covered by onshore wind turbines, but in the Land Use Change Scenario the use of land for onshore wind is considered to be a secondary use as it does not stop the same land to be used for primary purposes. 1 GW of onshore wind may be spread over ~20 kha. This is based on the Whitelee wind farm via Without the Hot Air ([41] page 33). So the proposed ~50 GW of onshore wind requires ~1 Mha of land on which the onshore wind turbines can be spread.

Marine - Wave. This takes no land use but does take sea area. The Energy Policy ([27]) proposes 3 GW of wave power by 2030. An estimate for the sea area for wave power is from Without the Hot Air [41] page 309. Although this is over ten years old, there has not been much progress on wave power in the intervening time, so this may be the best estimate available. [41] has 10kW of wave power per metre. Scaling that up implies a line of wave farms of 300 kilometres. A line of wind farms is 2.5 km wide, so this would equate to 75 kha of sea area.

Marine - Tidal Stream. The Energy Policy ([27]) proposed 7 GW of tidal power by 2030. Note that this is all tidal flow (currents) with no tidal range (rise and fall). Again we use Without the Hot Air [41] page 317 which has a helpful map of the sea areas which are most likely to be used. Only about 10% of the area is required for the 7 GW proposed by 2030. This is about 25 kha of sea area. As the tidal range is potentially on the seafloor, this sea area use may be considered secondary, and thus other uses of the same sea area are possible.

Hydrogen. The main land use implications of extensive use of hydrogen in the energy system is underground storage. As yet we have seen no conflict with above ground uses of the land. [42] page 101, helpfully provides maps of the UK showing where the storage of hydrogen is most likely to take place. These are largely under the sea. [42] page 105 gives volumes of the salt caverns, but no attempt has been made to quantify the land or sea area as this is unlikely to impact policy.

Pumped Storage and Hydropower. This takes relatively small amounts of land. But there are only certain places in the UK where it is possible to deploy the increased capacity that is proposed in the Energy policy ([27]). See [41] pages 193 and 194 for maps of potential sites for pumped storage.

6. Employment and enterprise

Provision of jobs in the countryside and facilities for rural businesses is essential for a fair distribution of economic wealth. A move away from low paid and seasonal jobs in agriculture and forestry is needed. A policy approach that supports and enhances this economic sector and fulfils the potential of non-agricultural rural enterprise - recreation and tourism, renewable energy, home working and internet linked enterprise, is required. These enterprises require better rural transport infrastructure and better broadband and mobile telephone coverage (which would also create jobs).

The Food and Agriculture Policy offers sustainable employment, decent livelihoods, career opportunities, good working conditions and ongoing training throughout the agricultural workforce; and supports smaller, local, and fair-trade enterprises and limits the concentration of power and wealth within the agriculture, food processing and trading industries (FA101).

The Land Policy suggests that eliminating speculation in land and stabilising prices should make more land available at cheaper prices, enabling more worker co-operatives, small-scale enterprises and other community ventures to flourish. The Local Planning Policy (LP601-606) makes provision for local independent retailing, but with a rather urban bias.

Rural areas support a dynamic and diverse economy that employs over 5 million people and makes a significant contribution to the national economy. Agriculture lies at the heart of this economy and it supports many spin-off enterprises - from recreation to retail outlets (CY511, CY620-624, TM031-043, 062-066).

Grouse shooting is commonly cited as almost the only source of jobs in upland areas (along with forestry), but there is no reason why the rural enterprises listed above could not create even more jobs in the uplands. According to a report commissioned by the Game and Wildlife Conservation Trust [53], although 8% of Britain is designated grouse moor [54] only 43% of grouse moors are profitable so they only contribute to 0.001% of GDP and directly employ less than 2,000 people. This can be compared with ecotourism for example, where for instance, National Parks England (covering 11% of the land area) provides 48,000 full time jobs and brings in at least £4billion in tourism and recreation expenditure [55]. Management of moorland for grouse shooting does not support biodiversity and we propose to reduce the area under this management regime, see LD501.[76]

Ideas to be considered to increase employment and enterprise in rural areas could include a national farming service, a shorter working week to enable people to spend more time at their allotments, and a reversal of the mechanisation of horticulture, so that jobs are created for unemployed people. Reducing mechanisation could also have the benefit of reducing fossil fuel use, perhaps indirectly through the reduction in pesticide and fertiliser use, but these are not policy areas for land use.

7. Flooding

Flooding (fluvial, pluvial, coastal and inland) will become more of an issue as severe weather events occur more often and we have systematically degraded the natural capacity for our land to help mitigate this.

We need to make land available to act as a natural sponge, for natural vegetation, such as woodland canopies, hedges and reedbeds, to re-grow, for rivers that used to meander to again have fallen trees and leaky woody debris across them. We need to reconnect rivers and streams to their floodplains.

The Land Use proposals seek to increase the land available for watercourses and wetland and peatland. However much of the mitigation of flooding is a local management issue, is cross-cutting and for this reason has not been considered to be within the current remit of the Land Use PWG (see also biodiversity and peatland). This is a policy gap in the PSS.

8. Green belt

Green belt, whilst a controversial and important subject in many parts of the country, is a planning issue. It is not a specific type of land use as the area assigned to green belt will cover many types of land use. It is however a land designation within spatial planning which is currently, and should continue to be, used to restrict urban sprawl. See LP407 and spatial Planning in LD500 and section 4.1 of this document.

Green belt land designations restrict (via planning permission) building in certain areas. These areas are usually rural, mostly agricultural land around towns and cities. This creates a helpful pressure for urban areas to be relatively dense which facilitates easy access to services/shops by active/public transport thus reducing car dependency. See TR011 and TR035-7

9. Food and Agriculture

The agriculture modelling in the Land Use Change Scenario is diet-led. The UK currently allocates around ~70% of land to food and agriculture, but is still a net importer of ~40% of its food. The sector generates a Gross Value Added of ~£10 billion and provides direct employment for ~500,000 people. ~0.5Mha of this is currently organically farmed (see [82] and [83]).
Green Party Policy is currently for “food sovereignty” (see FA101 and FA201) and the Food and Agriculture Background paper interprets this as:

> ***FA 101 Food sovereignty*** *is the right of people to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems.*

The LU PWG has assumed that the implication of this is that the vast majority of food consumed in the UK should be produced in the UK (otherwise it would be difficult to define UK food and agriculture systems without impinging on the rights

of those in other countries). So LU PWG has assumed that although some food imports and exports can be part of a sustainable food system, net imports will be small (say 10-15%). Achieving this within the constraints imposed by our assumptions requires that more land is allocated to agriculture and that the UK diet changes.

The Modelling by Oxford University of Public Health's *Eatwell Guide*, which has been adopted by the National Health Service as the Government's official guide to achieving a healthy and balanced diet, was adopted as a guide. This requires an estimated average reduction in the consumption of meat by around 89% for beef, 66% for pork and 63% for lamb, and a 20% reduction in dairy products.

Modelling on the basis of these assumptions has enabled us to estimate the amount of land we would need to feed the UK by the various kinds of agriculture required and the implications for greenhouse gas emissions reductions. Similar modelling has also been used by the Climate Change Committee [30].

Over and above the land use changes required by these assumptions, yet further land use changes and different management practises are required due to the relatively low yields (food product/hectare) from Green Party agroecology farming policies (FA201) compared to current practice. Additional land needs to be allocated to green manure to reduce artificial fertiliser. Analysis of the implications of this in the context of the Organic Farm Management Handbook [82] and numbers assumed in the Land Use Policy Framework can be found in Organic Handbook Numbers [83].

There is research (Ponti et al) [94] that organic yields can be 80% of conventional yields. But this is a worldwide study. Individual numbers for individual crops in the UK vary considerably, and the organic yields today for key crops like wheat are significantly lower. However current farming practises and seed varieties have been optimised for a high intensity farming using lots of artificial fertiliser and pesticides. Agroecological farming isn't just about not using these inputs but breeding new seeds and rethinking farming practises to optimise for a different set of constraints and objectives. For example work has been done to explore impacts of farm scale permaculture practises [97], and explore alternatives to typical organic wheat productions [86].

The Organic Handbook Numbers [83], in addition to looking at yields, compares the rotation of crops proposed in the Organic Farming Management Handbook [82] with the allocation of land in the proposed Land Use Change Scenario and shows that they are in the same ballpark.

The allocation of land in the Land Use Change Scenario does not completely achieve no artificial fertiliser (reduced by ~75%) and does not completely achieve food self sufficiency (~85% self sufficient) but it does go a long way towards achieving the food sovereignty and agroecological goals.

10. Housing and Built Environment

This narrative is aligned with the policies proposed inserted to the Housing and Local Planning Policy via the recent Voting Paper [28], to reduce carbon emissions from housing, other buildings and infrastructure, rather than the current policies [1]. In this section, we examine the potential impact of construction on land use.

One of the key questions is the number of new homes required over the next decade. There can be some agreement on population increase, but it is less easy to find agreement on numbers of people per home. Some of the increased housing need can be met by less demolition, more refurbishment, more re-purposing of existing buildings, fewer second homes and fewer long term vacant homes. Current proposals are for less than ~180,000 new build per year (see Local Planning LP160 and Housing policies HO410). Note that this is considerably lower than the 300,000 new build homes in government policy and other party policies. To go lower than this we need clear policies that address social home waiting lists (see manifesto ([45])), and alternative ways to deliver GPEW commitments for 100,000 additional social homes per year, the over-heated property market in some parts of the country and the challenge for young people to move out of the parental home. For the purposes of land use discussions we are investigating ~100,000 additional new build homes per year over the 20 year period of the land use change being considered in this voting paper.

Land Use Change Statistics [68] have not been published recently, but key numbers from the most recent are for an average of 45 new dwellings are built per hectare and 80% of new homes are built on previously developed land. Note that currently the buildings density is ~22 dwellings per hectare for current stock. High density housing (from the London Plan [69] page 117) can be up to 350 homes per hectare, but this reflects housing on particular sites rather than across the city.

We are considering a land requirement for new homes at 50 dwellings per hectare in rural areas and 75 to 150 dwellings per hectare in urban areas - although 150 may be too high as an upper limit if we are trying to avoid reinforced concrete buildings - so say an average of 75 dwellings per hectare in urban areas.

Over the 20 years of the proposed land use change (see Land Use Change Scenario) that would be ~2 million new build homes. These could be 50% rural and 50% urban. The urban land would primarily come from ex-industrial land, and the rural land from pasture.

Only a small amount of this new housing can be accommodated within current Residential Buildings (LUPWG category 8.1) land as the policy is to minimise demolition and rebuild (HO406).

Currently some of the new build is achieved by using existing gardens. Generally Green Party policy is assumed to be against this practice (see FA202, LP410, LP512), although this policy could be stronger. So no reduction of existing Urban Green Space (category 8.2) is assumed for new build.

Historically, newbuild has been incorporated on brownfield sites which are largely ex-industrial land (category 8.3). However, Green Party policy is to encourage localisation of Industrial production in the UK (IN204) and the Local Planning policies (LP506, LP507 and LP509) on the use of brownfield sites must be considered. The industrial production required for the Green New Deal proposed in the 2019 manifesto [45] implies a considerable increase in UK industrial production with an implied additional requirement for land. So only a small reduction of existing industrial land (category 8.3) is assumed for new build.

The land required for ~2 million new build homes, at proposed dwellings per hectare, is ~35 kha (eg ~20 kha from pasture and ~15 kha from industrial land). This is a relatively minor land use in the context of the current 1.7 Mha of category 8, Built Environment, land used currently. But this is still quite a challenge to determine which land should be used in order to avoid greenfield development. Note that LP507 encourages dense infill developments to offset the need for brownfield and greenfield sites (which may contradict the statement above about use of category 8.2 and 8.3).

11. Land access for marginalised groups

The Green Party aims to make land common property to the benefit of the entire country. This includes groups who have become marginalised because they have particular needs from the land that have been underserved by current land use arrangements. One of these groups is the traveller community. As outlined in the Rights and Responsibilities and Housing Chapters of Green Party policy, "We recognise also that the travelling people have ancient, valuable and valid lifestyles and cultures, and have a right to preserve these."
As part of reducing inequality and ensuring fair access to land councils should provide sufficient maintained sites to recommended standards, as needed to meet demand. There should be protections for travellers at traditional stopping places on expanded common land. Further detail is outlined in RR700.

12. Land Economics

The proposed large changes in land use will only be possible if the resulting land uses are still economically viable. The economics of the target land use should, in general, encourage the required land use change to occur. There are a number of economic factors that need to be considered in the change in land use:

- Carbon tax. In the main part, this is removed as a land use factor by existing policy in the PSS, EC777). Although emissions from much agricultural land are currently high, the burden of carbon tax would far outweigh the economic productivity of the land because of the managed inputs (e.g. diesel, fertiliser, pesticides, imported feed). Further, the carbon tax should encourage less use of inputs made with fossil fuels and exploration of other viable options.
- Land Value Tax. Currently [45] this is quoted as being at about 1.4%. As some farmland has a value of £20,000 per hectare this would result in about a £300 tax per hectare. This is quite high compared with current profits per hectare.
- EU Basic Payment Scheme (BPS). This subsidy of over £200 per hectare for much farm land is looking to be withdrawn with current government plans. Many farms cannot make a profit without it.
- Yields. Green Party policy is for agroecological farming (see FA101), which according to current references, reduces effective yields and revenue per

hectare. Unless farm gate prices increase to compensate this will reduce incomes.
- Fertilisers and pesticides. The Green Party policy of agroecology (FA101) will reduce outgoings on fertiliser and pesticides per hectare.
- Environmental Land Management. There are already environmental subsidies - such as Countryside Stewardship grants and others are being announced (ELMS). However, so far these subsidies are quite low compared with the EU BPS that they are replacing. To achieve the land use changes that are the required outcome of Green Party policy require much higher environmental subsidies.

Despite all these reasons why farming in the UK is not very economic, there are good reasons for a continued farming sector in the UK. In particular policy FA101 calls for Food Sovereignty (see section 6.9). Current agriculture subsidies run at the rate of £2 to £3 bn/year and look likely to decrease.

Work is ongoing in this area, but it is expected that to achieve the farming and land use objectives, agriculture and other land use subsidies may have to increase to ~£10 bn per year. Further informal working papers are available at [93].

13. Landfill

About 5 kha of UK land is used for landfill currently. This is relatively small compared with the ~24 Mha of UK land. But the amount of landfill land in the UK is dependent upon waste policies - see Natural Resources and Waste Management. The main policies should be to reduce waste in the first place and then to subsequently recycle much more than currently. But there is still likely to be a requirement for some waste to go to landfill for some time to come. This may be increased as incinerators are phased out. It may be preferable for inert waste (non-biodegradable) to be sent to landfill and effectively sequestered, rather than burning in an incinerator creating additional CO_2 outside of the carbon cycle. Further coverage of landfill is in the Climate Emergency Policy Working Group (CEPWG) Background Paper ([56] chapter 16).

14. Ownership & Stewardship

Ownership and stewardship are key cornerstones to this policy. Current policy in the Land chapter states that “no person and no body should have absolute control of land, but only particular rights over the use of it.”

Existing planning laws in the UK mainly relate to the built environment and to a lesser extent are the privilege of the Government (e.g. for national infrastructure). This policy proposes extending the control of land to all land, but also extending and strengthening the responsibilities on owners/stewards of land and the right of the community, within a legal framework, to influence and control the uses to which land is put. There will also be rights to define certain types of land, where its use is critical to the nation, as national infrastructure.

The policy introduces the concept of stewardship. Essentially stewardship is a mechanism for ensuring that the rights of nature and humankind are respected so that the principles and outcomes sought in our policies are achieved (see section 8.1).

Most home-owners think of themselves as absolute owners of their land (and are not even aware that the monarch is the ultimate owner). As the purchase of homes is such a huge financial burden to most people, changing the form of ownership is obviously highly sensitive, and the proposals will need to be carefully explained in a way that makes it clear that the security of ownership of a freehold-stewardship will be as certain and reliable as a freehold is now, as long as stewardship requirements are complied with. Stewardship requirements will be reasonable, easy to comply with and well understood, and there will have to be local support mechanisms, including financial support as necessary, for the implementation of the stewardship requirements. We recognise that private ownership of property is a cornerstone of free markets, international trade, and of the mixed economies that are in place across the most affluent countries, including Britain. Therefore to all intents and purposes having 'stewardship' of land will be almost identical to current freehold ownership, especially for homeowners.

Stewardship could, for example, oblige land owners to carry out certain activities, or refrain from certain activities on their land, to protect and nurture biodiversity and lower carbon emissions. These obligations collectively can be understood as a requirement for freeholders to act as stewards of the land, for the benefit of current and future generations; so freeholders could be referred to as 'stewards'. We hope that the policy levers in the PSS will drive most land owners/stewards in this direction, because it will be financially viable to do so.

Extending the control of land use to the community will be through Commons Trusts. These will be community-based and independent of central government. But because of the scope of their duties (which include effectively the management of all land in England and Wales, including the marine territory), they will require the same backing, expertise and funding that non departmental public bodies currently enjoy, so that they have access to professional services that will enable them to issues licences, take people to court, enter into high level negotiations etc. The mechanism for appointing them is yet to be decided, but they should have the overriding interests of the community at heart and they will make planning decisions that have the same status as those made currently by local and central government.

They will have the power to end a freehold-stewardship where conditions of stewardship have not been complied with after a proper process has been gone through, involving support and warnings. Compensation for the ending of a freehold-stewardship will be paid, as determined by professional surveyors/valuers and lawyers.

The ultimate controller of land will therefore be the Commons Trusts, so in practice they will take over “ownership” from the monarch and they will have the overall duty to steward land.

There will be transitional provisions to enable freehold owners to register their land, but each time unregistered land changes hands, it must be registered as part of the transfer process. All land must be registered by a prescribed date or any freehold on it would cease to be and the land would become common land managed directly by the Commons Trust.

15. Peatland

What is peatland?
Peatland is any land that has a top layer of 10cm or more of peat. Shallow peaty solid are those with majority of peat 10-40cm deep; soil with peaty pockets, are areas of mostly non-peaty soils, but including small pockets of deep peat. [79] In the UK, we also have deep peatland, where that top layer is over 40cm, and can be over 10 metres in depth. Peatland covers approximately 3000 kha – that is 12%, or an eighth of the UK land mass.[80]

The rain-drenched lands of the UK offer perfect conditions for the formation of wetlands. These places where water and dry land meet are home to a wide range of species, from dragonflies and damselflies, to wading curlew and snipe; from carnivorous plants to flitting butterflies. Most wetlands are peat-forming. When the ground is too wet for vegetation to decompose, a dark, organic matter called peat forms. This very slow growing material is an extremely important habitat for plants, such as sundew and marsh violet, which in turn support invertebrate and bird populations. [52]

Peatlands in the UK can be referred to as either a soil type or habitats such as fens and bogs. In the UK there are three broad peatland habitats. [87]

Blanket bog – these are peatlands that receive all their water from precipitation and typically form across a hilly landscape [95]. They are globally rare, although in the UK this is the largest peatland habitat, [87] with the UK possessing 13% of the blanket bog of the world. [81]. As a consequence of only being fed by precipitation they are nutrient poor and acidic [87]. The flora and fauna of blanket bogs are even more rare - partly because these disappear even more quickly than the underlying peat which has been put in place - sequestered, little by little - over thousands of years. [81]

Raised bog – these form in the lowlands on wet floodplains or in basins, often on the surface of existing fen peats [95]. They form localised domes of peat. They are also nutrient poor and acidic due to being fed by precipitation and they have similar plant species to blanket bog. [87]

Fens – these receive water from precipitation and groundwater that has been in contact with the underlying geology. Consequently, they exhibit a wide range of

types, including base-poor fens resembling bog-type vegetation of cotton grass, heather and Sphagnum mosses to fens rich with sedges, reeds and brown mosses [80] [87]

A peatland landscape can display a complex combination of blanket bog, raised bog and fens. Upland blanket bogs can be interspersed with nutrient poor fens, whereas raised bogs can grade into fringing "lagg" fens [95] [87].

Ecosystem benefits

Peatlands provide ecosystem benefits by the regulation of natural processes, including air quality, climate, water quality and natural hazard regulation such as flooding and wildfires (Bonn and others, 2009). There are also cultural, archaeological, educational and recreational aspects of peatland to take into account. [87]

Peatland is therefore an important habitat, and its restoration is a win for biodiversity (the Green Party's first priority for land use change), carbon sequestration (second priority) and for reducing flooding (a cross cutting priority).

Biodiversity

The ecosystem health benefits of restoring and wetting peatland are the sheer biodiversity and abundance of biodiversity that they can maintain from microscopic testate amoebae to the UK's largest land mammal, red deer [89]. For example, the alkaline fen at Fenor Bog in County Waterford, Ireland has 118 plants and 214 species of invertebrate, bird and mammal. The presence and abundance of certain peatland species within a peatland habitat can indicate the health of that habitat. The drivers of peatland biodiversity loss are habitat loss, invasive alien species, over-exploitation for agriculture, forestry and peat, nutrient pollution, and climate change. [88].

Carbon sequestration

Peat is a huge store of carbon - described by the International Union for the Conservation of Nature (IUCN) as "…the largest natural carbon store, storing more carbon than all other vegetation types combined." [80]. According to the Institute for Hydrology, metre for metre, peatlands have already stored more carbon dioxide than any other terrestrial ecosystem [32].

However, degraded and extracted peat bogs release a lot of carbon dioxide rather than absorbing it; and presently - because of the way in which humans are using them in the UK, peatlands emit over 23 $MtCO_2e$ every year. This is despite the fact that fenland peatland in its natural state would be a carbon sink, sequestering 0.6 tCO_2e per ha per year; and bog peatland (including methane and nitrous oxide emissions and reabsorption) only emits 0.1 tCO_2e per ha per year. p21 [80]

Flooding and water management

As well as absorbing carbon dioxide, the restoration of peatland contributes to water management. Peatlands have filtered huge amounts of water over centuries, and managed well, functioning upland peatlands can slow down the progress of water, reducing flooding; lowland peatland can prevent seawater intrusion

[33]. This is important, for example, in parts of the country, where upland peatlands sit above human habitation or flash floods are washing away soil. Degraded peat is unable to act as a sponge and hold onto water. Climate change is causing increased intensity of rainfall and wetter winters so re-wetted peat is seen as protection against these impacts.

The estimated value of the water provided by peatlands (25% of UK water) was £888 million in 2016 p2 [80].

Overall therefore, from the land use perspective, even though they cover only just *under 12% of the UK*, one of the most significant changes to current policy will be that peatland is re-wetted and returned to its pristine state.

The dilemma

How do we devise a fair way of moving from our current land use to a system where we can benefit from the natural services of peatland, whilst not creating economic catastrophe and food shortages?

Food production and horticulture

The impact on peatland of food production varies by location. Upland blanket bogs have a low food production value as they are mainly suitable for light grazing. Grazing Livestock farms failed to make a positive return in 2016 to 2018. In 2017/18 (and the farms were less productive in the previous year), the value per farm for agriculture was negative £12,500 with Agri-environment payments of £12,000. In addition, they had an average of £25,900 per farm from the Basic Payment Scheme, an EU rural grant payment. The farms, in aggregate, were only profitable as a result of subsidies. [87]

However, lowland fens are highly profitable for horticulture and arable farming, but this is at a detriment to the peat from erosion and the release of GHG from agricultural activities. [87] Horticulture farm agriculture income is £26,700 with Agri-environment subsides of £1,200 and Basic Payment Scheme of £4,600 per farm, total farm business income being £47,700 per farm [87].

In addition, there is nutrient pollution from fertilising and liming, which allows the accidental growth of other alien species and about half of carbon dioxide emissions from peat are from lowland fens that have been drained and converted to agricultural use.

Timber

Timber grown on peatland tends to be less valuable and less productive than timber grown on different soils. It is difficult to extract timber from peatland as extraction costs can be high due to machinery getting bogged down and large areas can be affected by wind-blown damage (Smyth and others, 2015). Approximately 84,000 hectares of afforested peat is with low productive trees (Committee on Climate Change, 2018). Often the wood goes for pulp, fuel and other low grade uses as the timber from bogs is of poor quality (Sloan and others, 2018). It can cost more to remove trees from peatlands than the value of the timber [87].

Recently therefore, forestry on peatland has been realised as ecologically undesirable or economically unviable (Bonn and others, 2009). [87] and there ecosystem as well as financial benefits from considering the conversion of coniferous plantation to peat. [90].

Conclusion
It is estimated that the carbon benefits of restoring peatland outweigh the costs by 5-10 times. [87] and it would appear that upland peatland grazing cannot be justified from the perspective of farming profitably, although there may well be situations in which conservation grazing in itself is valuable, aside from the meat production. Neither can forestry on peatland be justified.

With hotter drier summers in the climate projections, there is an increased threat of both wildfires on dried out peatland (releasing even more CO_2 and damaging the land and the land cover still further), and the washing away of dried-out brittle peat with nothing to anchor it to its surroundings, when deluged with heavy rainfall. In the Cambridgeshire Fens, the draining of the peatland has shrunk the land to such an extent, that now constant pumping is required to prevent land which has shrunk to below sea level from flooding. There is therefore an imperative to move away from farming on lowland peat also.

Policy

- All restoration is carried out over a 10 year period. This policy is considered a viable option by an analysis carried on by the Office for National Statistics [ ]. ONS assumes that there are no benefits before this date – all accrue afterwards. [87]
- Cessation of all peat extraction with 100% restoration by 2030
- 100% restoration of degraded lowland peat (arable cropland and converted grassland)
- 100% restoration of degraded upland peat
- Restoration of 100% of forested area planted since 1980

The policies could result in an emissions reduction of **8286 ktCO2e** for the UK overall, based on the Committee on Climate Change reductions in excess of those from the Low emissions scenario for all administrations.

One solution for farmland currently being researched for fenland areas is paludiculture. However, it would still involve land use management changes because crops from such a system are likely to be wet woodland and sphagnum, rather than wheat and other “traditional crops” or grazing water buffalo at low density. This has not been factored into the proposed changes, as not enough information has been found about these activities to date.

16. Plastic

Current estimates of plastic use in the UK are approximately 5Mt per annum. About one third of this is produced in the UK and two thirds is imported polymers. Nearly

half of it is used in packaging, with other uses including buildings (e.g. pipes), clothes (synthetic), tyres and other textiles (e.g. carpets).

Current GPEW policies are primarily about plastic pollution, reduction, and recycling (MC400, MC407, MC408, NR424 and NR425) rather than replacement with alternative biotic resources. So these policies in themselves have no land use implications. There are great challenges with waste from plastic. Some of it cannot be recycled, but much of it can, as covered by current policy. There are also challenges in incinerating them, which produces noxious emissions and CO_2. Resorting to landfill results in micro-particles passing ultimately into rivers and seas. Washing clothes and wear from tyres also contribute to the problem.

As described in the section on Biotic resources, the Land Use PWG proposes that there should be an aspiration to both reduce plastic use and replace it with other products. The main alternatives to packaging are wood based. Wood, hemp and cotton may also be used for textiles and in the building trade. All of these solutions in themselves require additional land for their production.

17. Soil

As described in the Land Use Change Scenario, there are a number of ways in which land can be fertilised in order to move towards an agro-ecological approach:

- Green manure
- Harvested legume crops
- Leys on rotation
- Animal manure
- Digestate from Anaerobic Digestion
- Composting
- Artificial fertiliser
- Sewage sludge

Each of these is addressed in turn (to be completed):

Digestate from Anaerobic Digestion (AD)
Together with energy policy, there is a proposal to increase the use of Anaerobic Digestion. The ideas behind this are in this ADBA report, [70]. See page 8 of the report for a potential ~100 million tonnes of input into AD per year (30m tonne sewage + 65m tonnes for farm waste). Much of this input is water (~92%) from this EBA factsheet, [71].

But for the soil and fertilisation, we are more interested in the output from the AD which is 8% (page 2 of the EBA factsheet) the output - ~8 million tonnes/year. WRAP have written a report ([73]) on “Digestate and compost use in agriculture”. On page 24, they suggest a rule of thumb of 30 t/ha application/year.

So this leads to the potential ~250 kha of arable land being fertilised in this way.

Artificial Fertiliser
The UK currently uses ~1 MtN of nitrogen based fertiliser per year (see [72]). This produces ~7 $MtCO_2e$ in its application (in the form of N_2O) and ~4 $MtCO_2e$ (mostly CO_2) in its production (see [74]). The production is currently achieved largely by the Steam Methane Reforming (SMR) process that creates hydrogen from natural gas with CO_2 as a by-product.

An alternative is to use Green hydrogen (H_2) created by electrolysis from surplus wind power. This can substantially reduce the CO_2 emissions in the production phase.

With possibly entirely spurious chemistry calculation this would equate to ~0.3 MtH or ~12 TWh of H_2 – which is in the right ballpark compared with other sources. This uses 2 for H and 7 for N as per ratios in urea (CH_4N_2O) and ammonium nitrate (NH_4NO_3) - the most common forms of nitrogen fertiliser.

It is proposed in the land use change scenario that artificial fertiliser will be reduced to 25% of current usage over the transition period. This requires ~3 TWh of H_2 with low CO_2 emissions in the production phase. Applying this fertiliser will still result in N_2O emissions of 1-2 $MtCO_2e$. Note that Green Hydrogen production of ~90 TWh in 2030 is proposed to put the H_2 production in context.

Sewage sludge
1 Mha of arable land could be fertilised by human sewage sludge. We just assumed 10% of this for now.

18. Woodland and Forestry

To achieve the scenario proposed, requires an almost doubling of the amount of broadleaved woodland in the UK. *Taking into account also the ambition of the Scottish Greens to increase the Caledonian Forest.* There are spin-offs for biodiversity, but the primary land use is for carbon sequestration.

Forestry is second in area to agriculture, representing 13% of UK land, from which fibre and fuel are provided. It generates Gross Value Added of £0.5 billion (excluding processing activities) and provides direct employment for 14,000 people.

7. POLICY LEVERS

The Green Party believes that significant land use change and land management change is needed over the coming decades to deliver the priorities laid out in this section of the background paper. The Land Use Change Scenario outlined in this section suggests what this change should look like. There are many ways that governments can direct, manage and shape legislation and encourage people to take certain actions in order to achieve particular outcomes. This section lays out the Green Party's proposal to do this which takes into account:

- In order for land use to achieve sustainable outcomes, decisions and control over land use must be joined up and sufficient, therefore some national oversight is necessary
- It follows that spatial planning must be taken into account as part of planning permission decisions
- Communities should lead on creation of local plans, which must add up to national targets. Therefore a balance between national strategic decision making (targets) and local autonomy and leadership is critical.

- Only if land use change is planned can just transition, training, housing and other needs associated with it be planned and organised so that they happen in parallel.

The Green Party will achieve land use change using the following policy levers:

- Planning permission system (via a new National Planning Policy Framework)
- Regulating who can take responsibility for managing land (stewards) and what happens if that responsibility is abused
- Land management subsidies (one-off and ongoing)
- Land Value Tax
- Carbon tax
- Tax breaks and 'eco taxes' (see EC776)
- Direct public ownership & management
- Training, support, research & public information campaigns

This section goes on to describe the proposed approach, how these various policy levels come together, and finally explores in more detail each of our proposed policy levers outlined above.

1. 'Spatial Strategies' and 'Spatial Planning' - the way forwards

For any government to make significant land use change, targets for land use change will be needed together with the policy levers that will achieve them. However, there are some fundamental overarching structural policy changes that need to be adopted before we can consider which policy levers to use. In order for the UK to understand the strategic impact of any land use change, we need to (re)introduce the concept of 'Spatial Strategies' and 'Spatial Planning'.

Spatial Strategies	are the setting of Land Use Change Targets (for example how many kha Peat Restoration there should be) and what the land management change targets are (e.g. reducing fertiliser use),
Spatial Plans/Planning	is mapping to allocate certain pieces of land to certain purposes.

Spatial Strategies should first be set at the UK level. Regional and local authority Spatial Strategies should cascade from this. Targets may need to be negotiated inter-regionally, but there are precedents in local plans. Regional Spatial Strategies will inform the creation (and subsequently the revision) of spatial plans (which allocate land for particular purposes).

Spatial Planning will mostly take place at the local level, but there could be special conditions applied for some defined areas or packages of land that need to be retained for UK or regional purposes for example for critical infrastructure and military installations.

1. Spatial Strategies

Spatial strategies will set land use and management change targets for a defined number of years (perhaps 10 year periods (e.g. 2030, 2040)).

The Green Party philosophy is that "Nothing should be decided at a higher level if it can be decided at a lower one". But the Green Party accepts that regional and national governments will continue to have an important role in planning (PB302).

We propose a Spatial Strategy at 3 levels, increasing in detail the more local they are.

- National Level - Under DEFRA / Community & LG (possibly as a merged government department?)
- Regional Level - this may vary according to local needs, but could for example include the Scottish, Welsh and Northern Ireland Assemblies, English Regions and/or Assemblies or City Administrations
- Local Level - Local Authorities (District or County Councils or Unitary Authorities)

At each level, Spatial Strategies will define minimum change targets (and where applicable maximum change targets - e.g. limit increase in size of built environment) for each of the Spatial Strategies that sit below it. For instance the UK Spatial Strategy will negotiate minimum and maximum targets for Scotland, Wales, Northern Ireland and each region of England. This dividing up of targets will need to take into account local geographies, Economic Spatial Strategies (IN401-404), community and cultural considerations and leave lower level Spatial Strategies as much freedom as possible whilst ensuring that UK's legalling binding objectives are met (e.g. Climate Change Act). Through negotiation, regional bodies will shape their regional targets within the constraints of the UK Spatial Strategy and so on for the local authorities' strategies within the regional ones. The spatial strategies for each region will be set based on the characteristics of that region.

As well as defining land use area targets, Spatial Strategies will also determine how the policy levers will be used to achieve these targets. This includes allocating funding for subsidies for land management (ELMs), funding for public ownership (e.g. county farms or of public forest) and outlines local taxation options that can be used to disincentivise some activities (See EC791). All Spatial Strategies must not only lay out how the policy levers will be used and how they will work together, but also include a monitoring, review and revision process so that more or less pressure can be applied in future years if not enough or too much land use change is happening. A body will need to be set up to manage this. The Wildlife and Habitats policy contains a provision to create a Commission for Nature: "WH201 To support the strategy, the Commission for Nature will create a digitally accessible map of all land and aquatic environments to identify the role they can play in protecting and regenerating nature. This will form a baseline for monitoring progress towards targets for regeneration set by the Commission.". The Land Use Policy Working Group needs to ensure that we work closely with the Wildlife and Habitats Policy Working Group to ensure that we align our proposals.

2. Spatial Planning

Spatial Planning will follow from Spatial Strategies. The planning will turn the land use change targets - the number of hectares of land change required to move towards our objectives for a particular period - into maps. It will also outline which types of land are suitable for different land use or land management changes. This will allow the appropriate policy levers to be applied to allocated pieces of land to achieve the objectives laid out in Spatial Strategy. These policy levers will create incentives (e.g. subsidies/grants) and disincentives (planning permission restrictions) combinations which will be a fundamental driver of land use change.

The creations of Spatial Plans will primarily take place at the local level. Local Authorities will be given a lot of autonomy to shape their own areas, but as well as drawing from Spatial Strategies they will need to take into account:

- National Economic Spatial Strategies (see IN401-404)
- National and Regional government stipulations on small areas of spatially significant land being used for critical infrastructure (railway lines, electricity generation and distribution)
- Land designations such as National Parks and Sites of Special Scientific Interest (Wildlife & habitat cross reference?)

1. Planning Legislation and National Policy Planning Framework (NPPF)

Although much of the current planning system will be retained (see LP401-519, HO400-411), some changes will be needed (even beyond those proposed in other chapters) in order to deliver Land Policy. It is Green Party policy (for example see FR902) to amend the National Policy Planning Framework. We propose that there is an overhaul of the planning system to introduce Spatial Strategies (as outlined above), and an National Economic Spatial Strategy (see IN401-404). Further, our policy will require all land to be covered by the planning system, rather than focusing only on the built environment. The 'Duty to cooperate' will be implicit in the cascading Spatial Strategies but when it comes to Spatial Planning also extending to agencies such as Environment Agency.

Although a lot of reconciling of competing land use objectives will be required, when it comes to deciding which specific local land use changes are to be made (see priorities section) reconciling the overall regional or national objectives will be done via the local planning process. The importance of cultural landscapes should not be forgotten.

2. Enforcement

Local planning authorities will be placed under a duty to comply with land use strategies and to have viable plans in place. Subsidies and incentives to freehold tenants will be conditional upon them having plans in place that will meet the required land use. They will also have to comply with planning enforcement notices and as a last resort tenancy contract severance (see *Obligations under freehold tenancy agreements* below). Transitional provisions will ensure that freehold tenants are not placed in financial difficulty because of the move from the system in place to a new system.

See the Local Planning and the Built Environment policy.

2. Policy Levers to achieve land use change

1. Planning permission

Planning Permission will be used as a tool to determine when land use change can occur (i.e. application of change of use, to determine what can built where, and way of levying carbon tax against land use changes (which would be upfront payments for net emissions, and potentially annual payment for net sequestration). For agricultural land, this would be where land was changed from a major land use to category to another e.g. forestry to grassland, not for changes for example within arable crops, from wheat to barley.

Planning Permission will therefore be a tool for ensuring spatial plans (i.e. land use change objectives) are complied with, both in urban and rural areas. Planning Permission requirements are enforced as now with enforcement notices and fines, but failure to comply with these would be an offence (See next section).

The PSS does not cover planning permission in sufficient detail to implement this policy at present and further changes to policy will be required. ~~This is complex and has many implications, so is worth exploring. There is no existing mechanism for levying carbon tax against land use change other than when land use change is as a result of a planning application.~~ We think that we should explore the possibility of making planning permission compulsory for all permanent land use changes which have significant emissions implications. This will not include land use change as part of agricultural rotations, as management subsidies will put sufficient pressure on these to be carbon neutral over the agricultural cycle. It will however, apply to bringing land from permanent grassland into the agricultural rotation, as well as aforestation, and most significantly the bringing of new land into the built environment.

2. Obligations (of land stewards) under freehold tenancy agreements

The Commons Trust would have the power to take land back into the “commons” (with or without compensation) were it deemed certain land management offences had been committed. This would happen by the severance of the freehold tenancy agreement (on all or part of a plot of land) on the grounds of a breach of contract. The decision on whether this should happen via the criminal justice system would be decided by the Commons Trusts and this would be an enforcement mechanism of last resort.

Clearly the detail around how this would work needs to be carefully thought through as it’s potentially very controversial. The Act that created the Commons Trust would have to provide for secondary legislation to define contractual obligations of freehold tenants. Such obligations might include failure to comply with stewardship requirements or perpetual non payment of Land Value Taxation.

This will in effect transition land 'owners' into land 'stewards' (owners of a freehold with obligations under that contract) with a responsibility to manage their land for the 'common good' (i.e. in the interest of current and future citizens).

See Thematic discussion on Ownership and Stewardship.

3. Land management subsidies (one off and ongoing)

Although this is not a Land policy, we will liaise with the Food and Agriculture PWG because we see land management subsidies, both as one-off grants or regular subsidy payment, similar to Environmental Land Management Schemes (which replaces the Common Agricultural Policy) as helping to achieve our aims. We expect that these would encourage land stewards to switch the management of their land towards goals set for the common good, via the Commons Trust and local and regional plans. This would have a particular impact on land stewards who farm or who own large tracts of land for other purposes (eg forestry or shooting), but is unlikely to affect the majority of the population who live in or own their home.

The detail of what the subsidies will look like and how they will be implemented is laid out in the Economics, Food and Agriculture Chapter (EC781, FA304, FA203), Wildlife and Habitats Chapter (TBC), and Forestry Chapter (FR603 - vague).

4. Land Value Tax

A LVT is proposed in Green Party economic policy (see EC780). It is one way of redirecting land use and is considered a progressive way of raising tax in that the burden falls on freehold stewards in proportion to the value of the land. Essentially the land would be valued at a level (that could be negative and therefore become a subsidy) that would make economic sense for the land to be used for the prescribed use. In practice, most urban and farm land would continue to be used as it is now, but with more appropriate land prices.

LVT would discourage land banking and encourage land to be used for economically productive purposes (to the extent they exist given the constraints on how the land can be used). This should lead to less speculation on land, and fewer buildings/homes left empty because they are primarily economic assets. This should lead to lower land prices over time where currently land values are inflated by speculation. It will discourage the owning of second homes or excessively large homes, making them more expensive, and act as a tax on wealth (land is a significant form of wealth).

5. Carbon tax

A carbon tax will be introduced as laid out in EC777. This will be levied against fossil fuels at point of extraction or importation. It will be levied against industrial installations that emit greenhouse gases from non-fuel industrial processes. It will be levied as an import duty against any untaxed embedded emissions (i.e. GHG emissions overseas). There will be a surcharge on aviation fuels to compensate for

altitude effects. It will be levied (either as a subsidy or tax) against land use change (e.g. peat restoration/degradations or deforestation, respectively) via the planning system (See Planning Permission Above). The only category of greenhouse gas emissions it will not be levied against is agricultural emissions (e.g. livestock) as changes to agricultural subsidies (see above and FA304) upon which almost all farming relies, should be sufficient to motivate change.

6. Tax breaks and 'eco taxes' (see EC776)

As laid out in the Tax & Fiscal Section, the Green Party policy EC790 states, "For reasons of democratic accountability, taxes should be levied at the level of government at which they are to be spent." It is therefore stated in EC791 that "Central government must distribute adequate funds from central taxation to fund centrally imposed obligations, and allow local authorities to raise taxes to fund their own initiatives. We would establish a menu of possible taxes that local authorities would be allowed to use under local democratic control, including land and property taxes and local pollution and congestion taxes (EC776 and EC778)."

This means that regional and local governments will be able to introduce taxes to incentivise land use change of land management change. For instance an extra tax against land designated as second homes (see HO603).

7. Direct public ownership & management

FR200 Outlines proposals to increase the size of Public Forestry Estate and HO500-505 outlines the creation of new publicly owned social housing. These are both forms for Direct Public Ownership and Management to achieve a desired and use.

Farms owned by local authorities ('country farms') are another example of Direct Public Ownership and Management (via tenant farmers and approving business plans) that might achieve land use and management change. The Food and Agriculture Policy currently doesn't take a view as to whether these should be expanded.

8. Training, support, research & public information campaigns

To move to a completely new system of holding land and of using land will require a huge shift in the mindset of all. There will be general alarm at the individual level and our proposals may seem like an attack on ownership of people's homes. There will be wide scale resistance from larger landowners who will see this as a land grab. The Green Party needs to position its land use policy as being for a fairer and more equitable distribution of land that also takes into account the need to restore the ecosystem to balance and enable us to live in a more sustainable and fulfilling way. This sounds drastic, but politicians, academics and modellers, those who work in the environment, the agriculture sector and many members of the public are beginning to recognise that this change is necessary.

A national programme of awareness of the need for land use change will be developed using consultation and training. We should not forget the smaller players in this programme, such as small farms, people with small housing portfolios that they rely on for income and people who own woodland or forests, for example.

There is a precedent for wide scale capacity building in the Regional Improvement and Efficiency Programme, which was a low cost way of exchanging best practice with and across regions and this could be recreated and could include awareness raising in the community generally.

Building the infrastructure capacity to carry out policies will also be required, e.g. tree nurseries to supply native trees and shrubs for planting; training for less intensive farming.

The shift from land ownership to land stewardship is a radical change of focus. Change will rely on strong advocates and partnerships. Local planning authorities will deliver spatial plans. These are drawn up after consultation with a wide variety of interested parties, but at present they often rely on financial viability (or prioritise economic growth) and do not incorporate the idea of stewardship for a common goal, nor do they value the myriad of other interests in land stewardship, such as biodiversity. One of the outcomes of our policies will be to set this "common goal", in liaison with partners.

8. POLICIES FOR A SUSTAINABLE SOCIETY

This section is organised by the chapters of the PSS (see [1]). Just the policies that relate to land use are included. These policies are shown in boxes that follow. Below each individual policy (in its box) there is commentary on the policy to clarify whether the policy is to be deleted and why, can remain, requires modification or needs to be added. It includes all current policies, prior to the DVP (see [10]), those that are being introduced by the DVP and those that are proposed to be changed via the DVP. Once the new policy is adopted, old policies will be dropped from this document over time.

The DVP itself will be written and within the framework of the Standing Orders of the Conduct of Conference (SOCC) (see [11]) - the section numbers below are the section numbers of this framework:

- Section D.1 Proposed by the LUPWG

- Section D.1 The DVP should be succinct and not contain excessive background commentary and a separate briefing paper with costings, research, counter arguments, relevance to campaigns. This document is considered to be the separate briefing paper for the DVP as a policy motion

- Section D.11.f and Appendix A.5.g Discussed in a workshop at GPEW conference led by the LUPWG. We are aiming for Autumn 2021 conference.

- Section E.3.g Consider the criteria listed including interactions with other policy areas, implications for elected Greens, effects on government finances, evidence

- Appendix A.5.a The DVP relates to more than one chapter of the PSS

- Appendix A.5.b The DVP is preceded by an Enabling Motion (EM) (see [11]). The EM has been proposed to Spring 2021 conference. The policy changes proposed shall not contain excessive policy detail or inessential non-policy background material.

- Appendix A.5.c The DVP will have a background paper which is this document

- Section C.12 Although the DVP is not formally accredited by Policy Development Committee (PDC), the same standards of internal consultation, external consultation, high

quality supporting evidence and alignment with the GPEW strategic political objectives will be upheld

- Section C.8 Policy changes proposed will also take into account the Standing Orders Committee (SOC) criteria listed including avoiding policy statements that are ambiguous, vague, trivial or requiring no consequential action

1. Land

The modelling that has been carried out for our land use allocations has been done at UK level. Our policies only cover England and Wales, although modelling has had to be undertaken at the UK level at all the reference data is collected at UK level.

In summary, the entire current Land Chapter is replaced by a new chapter; this section explains section by section why this is proposed.

Current Background LD100
In UK law the sovereign owns all land. Over time, the right to occupy and use, which was gained by feudal service to the sovereign, then through payment of rent to the Crown, has been transmuted to payment of a one-off lump sum. It thus appears that the free-holder has ownership of land in perpetuity, with apparent control over use or non-use, and the right to retain or sell at will. Since everyone needs access to land for homes and work, this system of tenure has historically contributed to extremes of poverty and wealth.

It is proposed to delete the current LD100 and replace with LD001

New LD001 Context
Land is the primary source of all real wealth, and is the common heritage of people and nature. In UK law the sovereign owns all land. Over time, the right to occupy and use land, which was gained by feudal service to the sovereign, then through payment of rent to the Crown, has been replaced by payment of a one-off lump sum. It thus appears that the free-holder has ownership of land in perpetuity, with apparent control over use or non-use, and the right to retain or sell at will.

This updated paragraph introduces at the forefront the principle that land is by right owned by nature and people, which accords with the right of nature established in the Wildlife and Habitats policy. The final sentence is deleted, as it is considered not to be policy, but it is covered in this background paper elsewhere and used to underpin the formulation of this new policy.

Current Background
LD101 Ownership of land brings unearned benefits deriving both from nature and from the activities of the community, as improvements in infrastructure and technology. This is most apparent in towns and cities where population levels, transport facilities, etc. and/or quality of life bring high demand for goods, services and homes.

LD102 Ownership of land brings unearned benefit if the value of goods and services produced on that land exceeds the amount required for labour and capital to make its present use viable.

LD103 The ability of land-owners to set their own price for access to job opportunities or amenities means that much, if not all, the value of any new services or technical improvement created by the community is siphoned off as unearned benefit to the land owner.

LD104 Changes in land-use, through such factors as the granting by the community of planning permission to build, or the development of the surrounding area by the activities of the community, frequently increase land value, perhaps by as much as 100 times. Such increases create unearned benefit in the form of windfall profits for land owners, either by exploiting the land themselves in the new ways that have become possible, or by selling at enhanced prices. The possibility of such windfall gains encourages speculators to buy up land and hold it, often unused or under-used and of little or no benefit to the community.

Delete current LD101-104 As above, this commentary on current land ownership is not policy, so we propose to remove it from the PSS, but it is discussed elsewhere in the background paper as it underpins policy. The ways in which landowners might profit from their land was outlined in old LD101-104. In particular, LD104 set out how change in land use, without reference to local communities or national infrastructure needs, might bring windfall benefits for the individual. The concepts of stewardship and land management for the common good are introduced in new section new LD300.

New LD100 Key outcomes
These should be the results of our policies.

- In the light of the planet's natural limits and the biological and climate emergency, humanity must immediately protect and increase biodiversity (providing us with abundant and diverse ecosystems, habitat mosaics), balance the nitrogen cycle and reduce carbon emissions to zero by 2030
- Reducing wealth inequality and ensuring everyone has fair access to land for recreation, health and education, and access to land to grow food, and
- Providing healthy food, resilient communities, local resources, and sustainable livelihoods
- To enable us to move away from reliance on the petrochemical industry to natural products to be net self-sufficient for things like building, clothes and packaging.

Insert new LD100. These outcomes are introduced, based on the Land Use Policy Working Group's interpretation of the Philosophical Basis and the subsequent consultation on the group's interpretation, and the requirements to be consistent with existing policy in the Policies for a Sustainable Society. They have been used to focus the subsequent policy to ensure that it meets these outcomes.

Current Principles
LD200 Land, the primary source of all real wealth, is the common heritage. We acknowledge that land is held in trust by human society on behalf of other species and future generations, and that land should not be treated as a capital investment nor traded for speculative profit.

LD201 We therefore assert the principle that no person and no body should have absolute control of land, but only particular rights over the use of it. These rights to specific agreed categories of use should be under the control of the community through land-use planning.

LD202 A clear framework of land-use planning must therefore be established which puts a high priority on the natural environment. Within such a framework, land should be used in ways which promote those activities which maintain and sustain the environment, while encouraging those activities with minimal environmental impact and discouraging those with high environmental cost.

LD203 The Green Party believes that the unearned benefits from land-use should be shared amongst the community, and that the community should collect such unearned benefits through a system of Land Value Taxation. Revenues raised by Land Value Taxation would be in substitution of, and not in addition to, other revenues.

LD204 Within an agreed land-use planning framework, a policy of taxing land value would act as an incentive both to encourage good stewardship, and to reduce corporate land ownership. It would encourage the best use of all land compatible with the agreed permitted use, encouraging urban land to be used to its fullest extent, and discouraging land ownership for investment purposes only.

LD205 A policy of taxing land value would bring net benefits to a large majority of the population whether urban or rural, including owner-occupiers on small or medium plots, and those who do not own land.

LD206 Taxing land values thus contributes to the creation of a decentralised, sustainable society. Eliminating speculation in land and stabilising prices should make more land available at cheaper prices, enabling more worker's co-operatives , small-scale enterprises and other community ventures to flourish.

Delete current LD200-206 inclusive and replace with new LD200. The first three principles underpinning the previous land policy (old LD200-202) remain essentially the same, but are put into more accessible language. The new paragraphs on land ownership are now contained in paragraphs in section LD300, which significantly expands on current paragraphs LD200 and LD201; a framework for land planning in new LD400 and 500, which expand on the need for better spatial planning, currently LD202; current LD203-LD206 are not the primary references for Land Value Tax. A new paragraph in section LD600 cross references to the policy of financial and tax levers. Explicit statements about discouraging land to be treated as a capital investment, provision for the transition to the new system of ownership and keeping within planetary boundaries are now added.

New LD200 The Land principles are:

- Land is held in trust and managed by human society for its own benefit and that of other species and future generations so that activities enhance the richness of life
- People may have particular rights over the use of land but not absolute ownership or control of it
- These rights to particular agreed categories of use should be the responsibility of the community within a clear set of planning rules for land use
- Treating land as a capital investment will be discouraged, and so will be trading it for speculative profit
- Those with rights to use land will be encouraged by the use of incentives to make the best use of their land for the community, future generations and nature; this will be biased towards protection, regeneration, restoration and include penalties for pollution and degradation of land
- Benefits that come from the right to use land should be shared with the community (by taxation where wealth is created)
- Land rights should be transparent and accountable
- The overrunning of the planet's natural limits and the unsustainable use of its resources should be considered as one challenge
- There should be a transition period that will achieve the considerable land use changes required.

Insert new LD200 (Principles)

Current LD300 Criteria for reformed and strengthened land-use planning should include:
a)protection of sites of special importance as habitats or amenity value;
b)support for the overall sustainability of the economy;

Delete current LD300 as this is now covered by the new Wildlife and Habitats policy and the Industry and Jobs chapters.

Current LD300 Criteria for reformed and strengthened land-use planning should include:
d)devolution of decision-making on land-use to community level;
e)best use of land already developed, especially in urban areas;
f)reduced pressure for inappropriate building on green-field sites.

LD301 Land-use planning to determine permitted uses would be undertaken by local authorities within U.K. guidelines. There would be a regional system agreed by groups of local authorities. (see LP402)

LD310 Land registry: The record of HM Land Registry would be made compulsory for all land within an agreed time limit and would be open for public inspection. Any land remaining unregistered after expiry of due notice would revert to the local authority for re-allocation.

Delete current (d), which is replaced by new section LD300, which significantly expands on (d). Delete current (e) and (f) which have been replaced by LP507. Delete current LP301 as this is expanded upon in new LP400and LP500. Delete current LD301, which becomes new LD301.

Current Land Value Taxation (LVT) LD400 The Green Party proposes introducing LVT (previously known as Community Ground Rent) as a tax payable on the annual value of land. The valuation would be of the land alone, exempting all buildings on it, recent and future improvements to it, or minerals extracted from it. LVT would therefore not be a tax on the rent of buildings, the value of crops, manufactured products or the product of other forms of work. (Minerals extracted from the land would be taxed separately - see NR423 & EC710s)

LD401 The proposed LVT would be levied by the local community at rates to be agreed amongst Districts and Regions. Any necessary redistribution between Districts and Regions would be undertaken by agreement between local governments in accordance with the principles agreed in EC551.

LD402 The level at which the tax would be levied would be based on the full value of the current permitted use of the land. Permitted use would mean, for example, that the taxable value of land which is deemed by the community to have special amenity or habitat value, thus inhibiting use for possible greater financial return , would be reduced. When it is considered desirable to change the use through the land-use planning framework, this new permitted use would then form the basis of the assessment.

LD403 Assessments would be reviewed automatically on change of use and every few years, or more frequently, on request. An arbitration process would be made available to provide compensation for those adversely affected by permitted use, and provision made for appeal against assessment.

Delete current LD400 because the primary reference is in the Economy chapter and cross references to this are in the new proposed Land chapter.

New Policies
LD300 Land Ownership
LD301 Details shall be held in a public registry of all land in the United Kingdom that will be open for public inspection free of charge, as provided for in LP517.
LD302 All Land, which is currently owned by the sovereign, shall be jointly owned by all citizens as ‘commons’ through Commons Trusts, which shall be independent of government. Their purpose shall be to manage land for the benefit of the ecosystem, current and future citizens (for the common good). Commons Trusts shall be funded via revenues, for example from Land Value Taxation and their policies, and major decisions will be made in accordance with the principles of democratic participations (see PA102 and PA103).
LD303 All land in the UK may be held as “freehold”, which in law is permanent and absolute tenure. This tenure shall encompass stewardship of the land. All land in the UK may only be held by UK citizens (individually or collectively) or by organisations registered at Companies

House. Individual citizens (individually or collectively) who are not UK citizens may be a steward of land for their own domestic dwelling and/or to derive a livelihood.
LD304 Transitional provisions will move people from the current system of tenure to a system based on stewardship.
LD305 Stewards of land have the right to derive profits and benefits from the use of the land. With this will come responsibility for managing the land in accordance with the defined common good (see LD302). Stewards of land shall also hold the right to transfer stewardship, which will be identical to the way we buy and sell land currently.
LD306 Determining whether stewardship has failed may be initiated by the relevant community or region via a petition to the Commons Trusts. The Commons Trusts, if they deem it appropriate, and after the issuing of warnings, shall start a judicial process to determine whether the freehold conditions have been breached and the freehold should be ended. The land shall initially become 'common land' managed directly by the Common's Trusts, but in due course the Common's Trusts may grant a new freehold.

Insert new section LD300 Land Ownership. New LD301 refers to the public registry of land policy, which is in the current Land Chapter, but is now referenced to the main policy in LP517. New LD302, 305 and 306 expand on the current policy and relate to the way we currently hold land. This is described in the Context to this background paper - that the ownership of land in England and Wales is very unequal, with a very small section of the population (including non-UK residents) owning a very high proportion of the land, and therefore having huge power over how the land is used. It is therefore proposed to reform how land is owned, to open the way for more public influence over how land is used. Instead of the ultimate owner of all UK land being the monarch, all land will ultimately be owed by all UK residents, although the permanent freehold of land will still be bought and sold as it is now through the property market. Public ownership will be administered through 'Commons Trusts' (separate for England, Northern Ireland, Scotland and Wales). New LD303 introduces the concept of "stewardship" of the land and introduces limits on who may own land. It is expected that this concept will be as well understood as the existing tenures of land, and more information on the detail of this is contained in the thematic discussion in section 6.14 above. New LD304 provides for a transition period, which would see owners moved over from the current system to a new system.

New Policies
LD400 Land Use Change - spatial planning
LD401 Land use priorities, in order of importance, are: biodiversity, reducing carbon emissions, growing food, sequestering carbon, biotic resources, energy.
LD402 There shall be a fundamental change of land use in the UK. The transition shall be achieved primarily by encouraging and supporting landowners to adopt land stewardship practices.This transition shall be completed within 20 years unless otherwise stated.
LD403 Government shall have a right to designate areas as critical national infrastructure, including current designations such as National Parks, but also new land use designations for peatland, wetland, saltmarsh and ancient woodland.
LD403a: To these ends, all farming and forestry on peatlands will cease and restoration to a good condition will take place over a 10 year period. See also CC014, FA206, FA301, WH101&102
LD404 Although much of the current planning system will be retained (see LP400-518, HO400-409), some changes will be needed (even beyond those proposed in other chapters)

in order to deliver Land Policy. The National Policy Planning Framework will become obsolete as it will be replaced by Spatial Strategies (see LD405, 502 & 503), and a National Economic Spatial Strategy (see IN401-404). The key change required to the planning system is expanding the scope to cover all land uses rather than focusing only on the built environment (including the UK marine environment).

LD405 In order for any government to make significant land use change happen, a process will need to be introduced by which targets for land use change can be set and a combination of policy levers be enacted to achieve them. Fundamental to achieve the required changes, therefore, are spatial strategies. Spatial strategy is the setting of land use change targets and land management change targets plus the oversight of processes/policies by which this change is achieved. Spatial planning is mapping to allocate certain pieces of land to certain purposes.

New Policies

LD500 Setting a strategy

LD501 There shall be an overhaul of the current planning system that developed over the last 100 years. Government planning and land use strategy documents shall be reviewed to ensure that they deliver the key outcomes of this policy.

LD502 Power shall be held/decisions shall be made, at the lowest possible level (PB302). Spatial Strategies shall be produced at three levels:

- National Level - under the Departments for Environment, Food and Rural Affairs and Community and Local Government
- Regional Level - this may vary according to local needs, but could for example include the Scottish, Welsh and Northern Ireland Assemblies, English Regions and/or Assemblies or City Administrations (see PA410-416)
- Local Level - local authorities.

LD503 Spatial strategies shall resolve conflicts in the hierarchy of land use arising from land use key outcomes set out in LD100 from the finite land area available to us. IN402 contains a duty to cooperate at national level and this shall apply to all levels of government.

New Policies

LD600 Policy levers to achieve land use change

LD601 Proposed levers are:

- Planning permission,
- Obligations of land stewards,
- Land management subsidies,
- Fiscal measures:
    - land value tax,
    - carbon tax,
    - tax breaks and “eco-taxes”
- Direct public ownership and
- Capacity building and a just transition.

LD602 Planning permission shall be used as a tool to determine when land use change may occur (i.e. application for change of land use) and a way of levying carbon tax against land

use changes. Planning permission shall therefore be a tool for ensuring that spatial plans (i.e. land use change objectives) are complied with. See also LP514 and LP517.
LD603 Obligations of land stewards - see LD304-306 & LD402.
LD604 Land management subsidies shall include stewardship grants, agricultural subsidies and payments (via a system based on the Environment Land Management (ELMs) scheme) by the Department for Environment, Food and Rural Affairs and Forestry England. See the Economics (EC781), Food and Agriculture Chapter (FA304, FA203,), Wildlife and Habitats Chapter (TBC), and Forestry Chapter (FR603).
LD605 Fiscal measures **-** these will introduce the powers to implement the financial measures outlined in LD600 and to prescribe who will manage them. These measures include:

- Land Value Tax - see EC780, EC781, EC782, EC792
- Carbon tax - see EC777, FA301 and CC121
- Tax breaks and "eco-taxes" - see EC776

LD606 Direct public ownership **-** FR200 outlines proposals to increase the size of the public forestry estate and HO500-505 outlines the creation of new publicly owned social housing.
LD607 Capacity building and just transition - to drive the transition forwards and facilitate the paradigm shift to a new way of using land, there will be a need for education, training, and support services. It is also critical that there is support for people whose livelihoods will need to change (IN205, MC363) This will be achieved through measures including:

- Public information campaigns
- Funding for land use research (see FR1400, FA301)
- Funding and expansion of agricultural colleges and land based apprenticeships (see FA204)
- Startup funding for young entrepreneurs in agriculture/horticulture (see FA203)
- Farm and land business advisory services (see FA202, FA204, FA301, FA304).

All the previous land use policies on a land value tax (old LD400-403) are covered in the Economics policy (EC780-EC782) and so have been deleted from this updated policy, but are cross referenced

2. Philosophical Basis

PB102 Like all creatures, humankind depends upon a healthy natural environment for its survival. Yet it is human activity, more than anything else, which is threatening the environment and, ultimately, threatening the future of life on Earth as we currently know it.

No change proposed.

PB105 We cannot go on indefinitely exploiting and wasting the natural resources of a finite world. If humans continue to promote policies which require the unlimited consumption of raw materials, it will lead not to more riches, even for the few, but poverty for all.

No change proposed.

PB203 Ecological Politics
Each organism is dependent on other species and on the physical world for its survival. Whereas human value judgements normally focus on human needs, value ultimately lies in the well-being of the whole ecosystem. Western society has seen nature as valuable only in so far as it is useful to

humans. Where human "development" has irreparably damaged the ecosystem, species have been driven to extinction, and the land is as useless for human purposes as it is for other species.

No change proposed.

PB204 Interdependence
The Green Party recognises that humankind depends on its environment for its welfare, and conversely that human activities have a critical impact on environmental processes, with serious implications for the welfare and survival of other species. Therefore the proper relationship between humanity and its environment should be one of interdependence within it, not control over it. Like all forms of life, we take from others and give back in return. We should ensure that human activities contribute to, rather than destroy, the richness of life.

No change proposed.

PB205 Diversity
The diversity of species living on this planet is a manifestation of its ecological complexity. This diversity sustains and strengthens all ecosystems so that they are able to withstand shocks to their functioning, such as earthquake or disease. The Green Party recognises the limits of humanity's powers to observe and understand natural processes and therefore recognises the necessity for protecting biodiversity for its own sake. The maintenance and enhancement of biodiversity is demonstrably beneficial to all life on earth, not just humans

No change proposed.

PB206 Sustainability
The central integrating principle underlying all Green Party policies is that all human activities must be indefinitely sustainable. They must neither use resources faster than they can be replaced, nor create effects or products which cannot be assimilated indefinitely by the environment. It is no longer valid to follow conventional short-term political planning practices. The long-term consequences of any activity must always be considered and ideally any planned action must either be in a form that can be continued indefinitely or will lead to a situation which can be indefinitely sustained.

No change proposed. Refer to PP112 for a fuller discussion.

PB420 Under the present system, economic growth is supported by unlimited consumption of both renewable and non-renewable resources. However, in a finite world there is not an infinite supply of natural resources. The Green Party recognises limits to growth. Limits to growth are likely to be imposed primarily by resource depletion and the ever-increasing costs of pollution. Furthermore, land also is in limited supply. An expanding world population demands expanding food supplies. Irresponsible land use planning, degradation of land through human activity and changes in land quality and availability due to the climate emergency, mean that land must be managed in such a way as to ensure sustainable human development and safeguard biodiversity

No change proposed. LUPWG agree with the point made here, but do not think it should be tackled in our DVP.

PB421 Conservation of land and natural resources will be very important in order to protect the natural environment from pollution and degradation. The Green Party believes that technologies which promote reuse and recycling of materials and products should be given priority over the production of goods from newly generated resources. We believe our towns and cities should be structured in such a way as to maximise resource conservation.

No change proposed.

PB450 The Green Party believes that, since human well-being depends on the use of land and its physical resources, property laws should be designed to ensure that all have access to the things they need. All those who have a stake in property should have a real say in how it is managed. Common goods need to be accountably managed by the community that depends on them.

No change proposed.

PB451 Property laws should permit neither states nor individuals to treat their property in whatever way they choose. Instead they should aim to ensure that all people, where they wish it, have their needs met through access to the land and its resources, while maintaining its quality for future generations. Property laws should therefore impose duties on owners as well as granting rights.

We need to examine this once we have determined who the owners of the land are. It was agreed that there is an action here to follow up once we have the DVP drafted, which is to cross reference for consistency

3. Animal Rights

AR411 A reduction in the consumption of animal products would have benefits for the environment, human health and animal welfare. There is evidence that large-scale animal agriculture is a significant contributor to greenhouse-gas emissions, habitat destruction, pollution and loss of biodiversity. The Green Party believes it is imperative to act and will actively promote an immediate transition from diets dominated by meat and other animal products to increasingly plant-based diets and to lifestyles using environmentally sustainable products derived from non-animal sources. The aim of these measures is to conserve natural resources, free up fertile land for increased production of plant-based foods and products, increase access to healthier food options, enforce animal welfare legislation and reduce animal cruelty. We will achieve this through research, education, economic measures and reformed approaches to farming.

No change proposed.

4. Climate Emergency

CC014 As the first country to industrialise and a major emitter of greenhouse gases over many decades the UK bears a particular responsibility. It should:
1. Act as an advocate for the Paris Agreement.
2. Increase its Paris Agreement commitments on emissions reductions, climate finance, capacity building and technology transfer.
3.Make the case for compensation for climate-related loss and damage and begin to pay such compensation.
4.Advocate an emergency international agreement to conserve and enhance carbon sinks and reservoirs including forests, peatfields and coastal and estuarine areas.
5.Reduce, by international collaboration, the emissions associated with its imports.
6. Support the Sustainable Development Goals.

No change proposed. Carbon sinks and reservoirs of all land uses in the UK must be covered in more detail in other policies in the PSS. See Forestry policy for UK forestry carbon sinks. See Land policy for UK peat and wetlands carbon sinks. See Marine and Coastal policy for UK coastal and estuarine carbon sinks.

CC015 The UK should base its future emissions budgets on the principles of science and equity and the aim of keeping global warming below 1.5 C. These principles entail the UK reducing its own emissions to net zero by 2030 and seeking to reduce the emissions embedded in its imports to zero as soon as possible. The urgency of these objectives requires the UK to make overcoming the technological, political and social obstacles a national priority.

No change has been proposed. But it is clear from the thematic discussion on Climate Change mitigation that there are considerable remaining UK own emissions in 2030 that will be very difficult to negate by negative emissions elsewhere in the economy. Another challenge in this area is to differentiate targets for methane and CO2.

Current CC121

Replace with:

New CC121 To drive change throughout society the UK should combine a carbon tax and dividend with publicity campaigns and possible carbon rationing. For instance, it should require all adverts for high carbon products, including food, to carry an 'environmental health warning'. The carbon tax would reflect most emissions of all greenhouse gases (not just CO2). See EC777 for exceptions to the carbon tax. It should have a progressive element to deter high individual emitters.

This has been changed as farm economics and land use emissions do not work well with the carbon tax. See further discussion under EC777

CC141 It should also convert to less intensive agriculture and convert grassland to forest where possible. There should be transitional arrangements and compensation for farmers where appropriate.

We may delete this policy:

- conversion to less intensive agriculture is covered in Food and Agriculture policies
- convert grassland to forest is covered in new Land chapter
- transitional arrangements and compensation for farmers will be covered by Land Value Tax

But it is not deleted in the Spring 2022 Draft Voting Paper.

CC300 The Climate Emergency is also covered in the following chapters of the PSS:

- Countryside
- Economics
- Education
- Energy
- Europe
- Food and Agriculture
- Forestry
- Housing
- Industry
- International
- Local Planning and Built Environment
- Marine and Coastal
- Pollution
- Transport

Add "Land" to this list of bullets, for completeness

5. Countryside

CY100-300 --- Leave as is as doesn't contradict what we're proposing (although hopefully someone else will tidy up soon).

CY400 The Green Party will seek to integrate environmental, social and economic objectives in all areas of countryside and rural policy, with the overall aims to:
a) Revitalise the economy and life of rural communities;
b) Legislate to reform land tenure and access to land;
c) Legislate to stop further destruction of wildlife habitats, the soil, the landscape, ancient monuments and our countryside heritage;

d) Enact policies that will make the whole countryside more hospitable to wildlife, entailing increased protection for wildlife and habitats and delivery of meaningful landscape-scale conservation and restoration;
e) Increase the area and quality of woods, orchards, agroforestry, hedges and other tree cover;
f) Ensure food security, integrating human health and wellbeing, environmental protection, animal welfare and decent livelihoods for farmers, farm workers and growers;
f) Reduce greenhouse gas emissions and develop appropriate renewable energy especially at local and community level.

Insert references to Land Use chapter at (b)(see LD300) and (e) (see Food and Agriculture and Land Use Chapters)

CY500-510 --- Mostly going to W&H, leave their DVP to sort out.

CY520-527 --- Leave as is as doesn't contradict what we're proposing (hopefully someone else will check this is covered in new Food & Agriculture VP and it with a para + cross references).

CY522 The Green Party will discourage the amalgamation of farms, support family farms, improve access to land for new entrants to farming and horticulture and favour the setting up of sustainable, small-scale and labour-intensive enterprises and their associated dwellings. We support sustainable diversification and multiple use of agricultural land and buildings, for instance for appropriate renewable energy, tourism, recreational pursuits and low-impact enterprises.

In reference to comment on CY520-527 above -- this this policy could be deleted as it is covered sufficiently by Food & Agriculture policy

CY523 The Green Party will support small-scale, environmentally benign farming systems that protect the soil, biodiversity and water resources, minimise greenhouse gas emissions and pollution, support 'joined-up' wildlife habitats and provide secure jobs in rural communities. We support farming and land management which conserve and, where appropriate, increase woods, orchards, agroforestry, hedges and other trees. We will phase out 'factory farming' and discourage farming systems highly dependent on fossil fuels and imported feed that have large-scale environmental impacts and tend to reduce rural income and employment.

In reference to comment on CY520-527 above -- The Green Party does need to debate the land use implications of extensive vs intensive farming and so in this context we need to look at what is meant by "factory farming". However, this is a matter for the Food and Agriculture chapter.

Planning
CY540 The Green Party will ensure that planning for sustainable use of the countryside for multiple purposes is a major and integral part of the Local Development Frameworks to be implemented by all Local Planning Authorities and National Park Authorities. Advice will be provided by the government's statutory authorities and agencies on conservation and full democratic consultation undertaken. Ecological criteria will be given full weight in all planning decisions.

CY541 The Green Party will ensure that planning decisions are made at the lowest appropriate level - by elected parish, town, district, county or unitary councils, and ensure that they have the necessary training and access to knowledge to make appropriate decisions. Appeals against refusals will be determined by a strengthened independent planning inspectorate, competent to take all factors into account. The Infrastructure Planning Commission, or any similar separate fast-track body for national infrastructure decisions, will be abolished as democratically unsafe. However, steps will be taken to avoid unnecessarily long hearings into major developments. The Green Party will review the case for the right to appeal against local planning approvals.
CY542 The Green Party will strengthen planning controls for large-scale or damaging land-use changes in the countryside, in particular, large-scale farm buildings, new and improvement works by drainage bodies and water authorities, clearances of woodland, works affecting woodland and large-scale afforestation.
CY543 The Green Party will introduce legislation to halt and reverse the spread of light pollution in the countryside in order to protect the dark night sky and to minimise disturbance to wildlife from artificial light. There will be a presumption against new lighting in the countryside - this will be incorporated into all Local Development Frameworks. Improved lighting design and the use of more efficient lighting will be required for new developments or replacement of existing lighting. Energy conservation, including the removal or reduction of unnecessary lighting, will be promoted. National policy that encourages local renewable energy installations will be retained, strengthened and enforced.

Replace with:

Planning

CY540 The Green Party will reform the way spatial planning (LD400) happens in the UK and introduce Spatial Strategies to ensure that Land use change and Land management change achieve the key outcomes set out in LD100. This will happen inline with the Party's principle for decisions to be made at the lowest possible level (See Local Planning and Built environment Chapter) and enable the land use changes required for our society to thrive within planetary boundaries.

CY541 The Green Party will introduce legislation to halt and reverse the spread of light pollution in the countryside in order to protect the dark night sky and to minimise disturbance to wildlife from artificial light.

This block of policies has been replaced with a more concise cross reference because it is either made redundant by implementation policies in this DVP, already had generic repetitions, or was too detailed to be needed in PSS.

CY550-556 --- Leave as W&H are amending and it doesn't contradict what we're proposing
CY560-561 --- Leave as it doesn't contradict what we're proposing (W&H are going the same)

CY562 The Green Party will retain and rigorously strengthen Green Belt legislation as a positive measure to revitalise the countryside, improve quality of life for people in cities and large towns and encourage the extension of 'green wedges' into the cities. We will:
a) Make rural communities rewarding places to live and work in, reducing and reversing rural depopulation and out-migration.
b) Extend environmental and social impact statements into all areas of decision-making.
c) Encourage the development of thriving urban and rural communities.
d) Reduce speculation in land in both urban and rural areas.

This duplicates the Planning chapter points on "green belt" (see LP407, 510). Delete and replace with:

CY562 The Green Party will retain and strengthen Green Belt legislation as laid out in LP407 and LP510. The Spatial Strategies and Spatial Planning will complement this (see LP300 and LP500).

CY570-571 --- Leave as it doesn't contradict what we're proposing.

CY572 Good management of existing woods, plantations, orchards and hedges will be encouraged, for example through agri-environment schemes. Farmers and landowners will be encouraged to allow new woods to grow and where appropriate to create new plantations, orchards, agroforestry and hedges.

Probably duplication but could do with cross reference to Land Chapter and ELMs points in Food & Agriculture.

Rural Housing
CY600 There is a crisis of housing and affordable homes in rural areas. Pressure to build more houses to accommodate second and third homes puts pressure on housing availability and on land, which frequently is good quality agricultural land better suited to supplying long-term food requirements. Developments in existing rural towns and villages puts pressure on already inadequate facilities, and while incoming residents can benefit such areas, new housing developments can generate local hostility. Much of this new build is unaffordable to people working in the countryside and for a young rural generation who might choose to remain close to their family roots.
CY601 Imaginative schemes, as proposed in the Green Party Housing policy, are needed in order to address the issue of rural homelessness and to secure a supply of affordable homes (see HO103). A Rural Housing Agency will be established to keep under review the needs of people working in rural areas who might not be able to access homes through traditional routes (see HO507).
CY602 Support will be given to low-impact living initiatives, particularly where they can meet rural housing need and help with rural economic regeneration. Such developments will be required to follow the principles of sustainability and self-reliance being pioneered by the Transition and Low Carbon Communities movements (see HO509). These schemes might include self-build projects (see HO508).
CY603 The Green Party will enact policies to discourage the speculation in land that pushes up prices beyond the means of the majority rural population. We will discourage second home ownership since this effectively reduces house availability to the permanent rural population.

No policy change proposed, but scope to make more concise. Doesn't constricted Land Policy, but could do with cross reference and directly relates to new rural housing allocation in Land Use Change Scenario (see section 8 of this document).

Possibly replace with:

Rural Housing
CY600 It is critical that rural housing is affordable to those working in rural areas, for people taking new land-based jobs and the people (particularly young people) wishing to remain close to their family roots. Affordable access to rural housing should be ensured through:

- *Restricting the use of rural houses as 2nd homes - See HO401 c)*
- *Promoting social, co-operative and self-build/custom-build housing - See HO401 g)*
- *Discouraging the speculation in land using Land Value Taxation - See EC780*
- *Initiating a Housing Options and Advice Service to allow joined-up provision of housing between authorities and across the country - See HO706*

CY601 A Rural Housing Agency will be established to keep under review the needs of people working in rural areas who might not be able to access homes through traditional routes.

CY602 Support will be given to low-impact living initiatives, particularly where they can help meet rural housing needs and help with rural economic regeneration. Such developments will be required to follow the principles of sustainability and self-reliance being pioneered by the Transition and Low Carbon Communities movements.

CY603 Pressure to build more houses puts pressure on housing availability and on land, which frequently is good quality agricultural land better suited to supplying long-term food requirements. New rural housing can also put pressure on local services and be difficult to serve adequately with public transport (see TR080-83). Balancing these competing objectives and tradeoffs will be done through Spatial Strategies and Spatial Planning (see LD300 & LD500).Possibly replace with:

CY604-610 --- Leave as it doesn't contradict what we're proposing.

CY620-624 --- Leave as it doesn't contradict what we're proposing. That said it does talk about planning permission and tourism land use issues in CY621.

6. Culture Media and Sport

CMS205 Where an activity makes use of limited resources (for example media bandwidth, land for sporting activity, venues for cultural activities) then it is the role of government to reserve a proportion of the resource for 'public' access (e.g. public service channels, public playing fields, support for local theatre infrastructure)

No change proposed as we do not intend to reduce land available for Culture Media and Sport.

CMS844 School playing fields should be protected from development through rigorous planning controls. All new schools should include sufficient indoor and outdoor facilities to ensure that all pupils can be accommodated

No change proposed as we do not intend to reduce land available for Culture Media and Sport.

7. Disability

DY200 Traditional legal and policy views of 'disability' have been based on the "medical' or 'individual' model. "Fixing" impairments by aids, assistive technology and rehabilitation have been emphasised where the individual model dominates. We do need effective provision in this area to enable people to live independently.
The social model of disability is based on the view that it is society which disables. This approach focuses on the need to adapt society to enable (rather than disable) people with impairments. The

barriers to equality mainly arise from the environment such as inaccessible buildings and services, attitudes such as stereotyping, discrimination and prejudice, and also organisations policies and practices.
Disability is something imposed on people's impairments by the way they are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society.
The bio-psychosocial model which was based on the recognition of the mindbody continuum has gained credence and has been interpreted in some policy areas in ways that are unhelpful to disabled people and which prevent them from enjoying their full rights as citizens.
The rights based approach to disability is based on the conviction that disabled and non-disabled people should be equally valued. Disabled people cannot be squeezed into narrow concepts of normality.
New laws from December 2006 placed a duty on public bodies to promote disability and these were incorporated in the Equality Act 2010. The Equality Act 2010 aims to protect disabled people and prevent disability discrimination. It provides legal rights for disabled people in the areas of employment, education, access to goods and services, buying and renting land and property and provision by public bodies.
The Green Party supports the EU in viewing disability as a social construct and recognises that the link between poverty and disability is well established. The FETD (Framework Equal Treatment Directive First) however, applies only in the context of employment and occupation. This contrasts with the other Article 13 directive, the Race Directive, which applies to social protection, education, housing and goods and services as well as employment which limits the application of the FEDT for disability

.

Propose to insert an additional paragraph under the paragraph starting "New laws from December 2006" :"The Green Party will improve accessibility to land and buildings, including rural areas, for people with all types of impairment". This will be embedded in the requirements delegated to local authorities. Implementation will mainly be through improvements made as properties are retrofitted or as changes are made to land use"

8. Economy

Current EC777 A carbon tax will be introduced whereby a steadily rising price will be placed on sources of all greenhouse gas emissions, including agricultural emissions and those embedded in imports (EC779). Part of the tax revenue will be paid out as dividends to UK residents, while some will be used for promoting sustainable behaviours, investing in zero carbon solutions, and meeting international climate obligations

Replace with:

New EC777 A carbon tax will be introduced whereby a steadily rising price will be placed on sources of greenhouse gas emissions, and those embedded in imports (EC779). An exception to this will be emissions from land management which will be addressed via the planning system (see LD602) or via land management subsidies (see FA301 and FA602). Part of the tax revenue will be paid out as dividends to UK residents, while the rest will be used to promote sustainable behaviours, investment in zero carbon solutions, and meeting international climate obligations.

This has been made the central policy in the PSS to explain what attracts the carbon tax and what does not. Due to the Economics of Farming and Land Use, the imposition of a rapidly increasing carbon tax would make many land based activities uneconomic. Subsidies would have to be given to return the carbon tax to these businesses - as proposed in the 2019

General Election manifesto (see [45]). In the terms of the CCC categorisation (see [30]) of the Agriculture and Land Use (LULUCF) the following are exempted from the carbon tax:

- Agriculture: Enteric fermentation
- Agriculture: Soils
- Agriculture: Wastes / Manure management
- LULUCF: Forestry
- LULUCF: Cropland
- LULUCF: Grassland

LULUCF: Peatland

Carbon tax will still be applied to fossil fuels used in farming and forestry and embodied emissions in any artificial fertilisers used.

Further discussions are required whether it is practical to levy carbon tax on all land use emissions in this way.

EC780 A system of Land Value Taxation will be introduced. The LVT rate will be set at national level, and the tax will be calculated by applying the rate to the capital value of the land itself, not including any buildings etc. built upon it. Local authorities may levy an additional local Land Value Tax once the tax is fully implemented, and, subject to EC792, keep the proceeds locally. All LVT will be collected by local authorities. We will seek to use LVT in the long run to replace other land- and property-based taxes (see HO603).

No change proposed.

Current text: EC781 There will be no exemptions for different land uses from this policy. Where obligations are placed on landowners to conserve wildlife habitats, archaeological sites or other landscape features, the capital value of the land may be assessed as zero or negative, and LVT would then become a subsidy. The effect of LVT on UK Agriculture will be managed through changes to farming subsidies in line with objectives laid out in the Food & Agriculture chapter. LVT will be introduced gradually over a number of years. As a transitional measure, where land necessarily attached to a domestic dwelling was subject to a mortgage on the day the tax was introduced, the tax would apply only to the value of the land net of the mortgage. Owner occupiers aged over 65 years will not be exempt, but they will be able to 'roll over' payments until the home is sold.

Replace this text with

Proposed text: EC781 There shall be no exemptions for different land uses from this policy. Where stewardship obligations are placed on freeholders to conserve wildlife habitats, archaeological sites or other landscape features, the capital value of the land may be assessed as zero or negative, and LVT would then become a subsidy. The effect of LVT on UK Agriculture will be managed through changes to farming subsidies in line with objectives laid out in the Food & Agriculture chapter. LVT will be introduced gradually over a number of years. As a transitional measure, where land necessarily attached to a domestic dwelling was subject to a mortgage on the day the tax was introduced, the tax would apply only to the value of the land net of the mortgage. Owner occupiers aged over 65 years will not be exempt, but they will be able to 'roll over' payments until the home is sold.

EC791 Central government must distribute adequate funds from central taxation to fund centrally imposed obligations, and allow local authorities to raise taxes to fund their own initiatives. We would establish a menu of possible taxes that local authorities would be allowed to use under local democratic control, including land and property taxes and local pollution and congestion taxes (EC776 and EC778).

No change proposed. The commentary for this is in the Policy Levers section.

9. Energy

EN010 In line with the move from fossil fuels, clean electricity generation will be substantially increased, based primarily on renewable, very low carbon sources with offshore wind as a major source, supported by onshore wind, marine, solar photo-voltaic, biofuels, hydro power and geothermal.

No change proposed. Some of these policies impact on land use. There is a thematic discussion of energy and its land use at Energy.

Current: EN015 Biofuels will be sustainably sourced within the UK. (see Forestry policy).

Replace with

New: EN015 Biofuels will be sustainably sourced within the UK, and therefore the quantity available will be limited. (See FR700).

The restriction that any biofuels must be sourced sustainably from the UK has major land use implications. Given the constraints and priorities on land use, this will substantially reduce the amount of biofuels available. As explained in [27] much of the biofuels (for example in the Drax power station) are currently imported. See thematic discussion on Energy.

NEW EN017 Solar Photovoltaic will be deployed on roofs unless there is no better use of the land.

This is a new policy. It is already an assumption in Energy Policy Background Paper [27] that 75% of Solar PV power will be deployed on roofs. This explicit policy will limit the deployment of solar farms further, as solar farms have often been deployed on land which would be better used e.g. for bio-diversity or food. The cost of deploying Solar PV is appreciably more expensive on buildings than on solar farms, but does in general reduce the electricity distribution costs as more of it can be consumed where it is generated.

EN021 Heating of buildings will be transformed by the use of solar thermal, heat pumps, biofuels, stored heat, hydrogen and electricity; the use of natural gas for heating will be phased out entirely.

No change proposed.

As per EN010 above there is going to be limited UK sourced sustainable biofuels for this purpose. Other forestry products, eg for construction and paper may well take priority.

10. Europe

EU540 Despite some positive reforms, the EU Common Agricultural Policy (CAP) has failed to support true sustainability in agriculture and to ensure long-term food security. The current aim to increase the 'global competitiveness' of EU agriculture, the increasing industrialisation of farming and the large proportion of subsidies going to the largest farms conflict with the aim to make farming more sustainable. The accession of new EU members in Central and Eastern Europe has presented new challenges, particularly over levels of funding.

The Europe chapter of PSS is subject to an enabling motion and so this may well be changed. In the context of land policy, this policy is interpreted as not encouraging the Basic Payment Scheme of CAP that allows the largest farms getting the highest subsidies.

EU543 We support measures which return agricultural and fisheries policies to decision at national and regional levels subject to the constraints imposed by European-level policies designed to protect transnational marine ecosystems. Any subsidies which might be necessary to encourage

the change over to sustainable agriculture and fisheries should be determined by national or regional government.

This policy further reinforces other policy that subsidies should be used to move to land use for sustainable agriculture promoted by the land policies.

EU545 The production of safe, nutritious food should be a prime objective, but diversification to traditional non food crops and use of land for productive forest should be encouraged. Use of normal farmland to grow biofuels is discouraged.

No change is proposed. The discouragement of land for biofuels is consistent with the proposed changes to reduce use of biofuels in energy and forestry policy.

11. Food and Agriculture

It is noted that these policies became policy in Autumn 2020 and so they cannot be substantially changed within 2 years. The earliest the Land Use Voting Paper can come to conference is Spring 2022 which is within 2 years. However if the changes are important enough to get coherent policy, then the Land Use Voting Paper or parts should be delayed. If changes are required to policy we should not hesitate to address this here first and address when the changes can be made second.

FA101 AIMS OF the Green Party Food and Agriculture Policy - to enable the development of a Food and Agriculture system that is effective and sustainable in all senses. We will work with farmers and other stakeholders to transform the system and create an industry that:
• Produces healthy, nutritious food and other useful outputs to meet the needs of the population at fair prices for producers, consumers and all workers in the food sector;
• Overall, in order to address the climate crisis this will mean producing less meat and dairy and more fruit and vegetables;
• Ensures food sovereignty and a secure supply of food; ensuring that there is sufficient food for everyone.
• Adheres to high standards of animal welfare and husbandry;
• Ensures sustainable practices across the whole food production system including farming in an agro-ecological way.
• Conserves and improves the health of the soil;
• Enhances the wider environment, including water quality, within and beyond the purely agricultural context;
• Will reduce emissions of greenhouse gases to meet the Green Party target of zero emissions by 2030 for the whole economy;
• Promotes and maintains a wide diversity of wildlife;
• Offers sustainable employment, decent livelihoods, career opportunities, good working conditions and ongoing training throughout the workforce;
• Acknowledges that agriculture has a responsibility to manage land for a range of purposes beyond food production – flood prevention and alleviation, carbon capture, public access, maintenance of wildlife habitats, promoting biodiversity;
• Supports smaller, local, and fair-trade enterprises and limits the concentration of power and wealth within the agriculture, food processing and trading industries.
• Educates the population about food and health and builds links between farms, schools and the wider community.

Note that this policy includes a policy on food sovereignty (3rd bullet). Currently the UK is a net importer of food (about 50% of food is imported). The interpretation of this policy makes

a massive impact on land use. It could be interpreted as the UK no longer being a large net importer, but instead agricultural imports and exports approximately balancing.

The 5th bullet covers agro-ecology which also has a massive impact on land use, so further discussion is required on land use implications.

FA201 Agricultural Production – We will:
Work to maximise food sovereignty using methods that are ecologically sustainable (agro-ecology), reduce greenhouse gas emissions, support best practice animal welfare, support a healthy wildlife population and provide necessary ecosystem services. This will operate on a landscape scale as well as individual farms.
• Rebalance agricultural production to produce more fruit and vegetables and to anticipate reduced demand for meat, milk and eggs.
• Support measures which promote local, regional and national food self-reliance. We support the maintenance and extension of the Products of Designated Origin system for relevant products.
• While it will continue to be necessary to import foodstuffs especially those that cannot be grown in the UK; we will control the import of animal feed especially that which is grown in unsustainable or environmentally destructive ways.

This policy proposes agro-ecology. This, like FA101 has massive land use implications as the yields per hectare are much lower with agro-ecology, so this requires discussion.

FA 202 Structure of Agriculture – We will:
• Introduce policies to reverse the economic pressure toward unsustainable intensive farming methods and to support smaller mixed farms and those using sustainable methods. Farms should be able to make productive and environmentally safe use of all the 'waste' materials that they produce (eg manure).
• Support mixed farms and improve access to land for new entrants to the industry particularly in labour-intensive enterprises such as horticulture. We will amend the planning guidance to Local Authorities for rural areas to enable the associated infrastructure and housing to be constructed.
• Support community supported agriculture, community growing schemes, access to allotment gardens, urban gardening schemes and other local sustainable food initiatives.
• Establish an independent agricultural and horticultural advisory service to provide advice to farmers and growers based on sustainable principles.

The first bullet describes the move away from intensive agriculture. This has massive land use implications and so needs to be discussed (along with FA101 and FA201).

FA203 Financial Support for Food and Farming – access to nutritious food is a right which should be upheld and so we will use public funds to support the production of wholesome food in environmentally and socially sustainable ways.
• We will change the basis of agriculture support toward supporting a combination of sustained, fairly rewarded employment, producing nutritious food, reducing greenhouse gas emissions, high standards of animal welfare, enhancing wildlife habitats, providing ecosystem services and promoting a transition to non-chemical methods of farming.
• We will develop a mechanism to intervene, when necessary to ensure that prices and incomes are fair and sustainable throughout the food system.
• As a condition of public support farmers and growers should declare the production methods and inputs that they use and this information will be made publicly available.

• We will encourage new entrants to agriculture and horticulture and enable access to land and the provision of the necessary finance and training.

This policy is generally relevant to land use and the financial arrangements that will result in the proposed changes to land use. The last bullet relates to land for new entrants to agriculture.

Current FA301 Food, Agriculture and Climate Change – climate change is the most profound challenge facing the planet. Agriculture and food production account for some 10% of UK greenhouse gas emissions. Soil is the most important carbon store in the UK.
• All farmers will be supported through advice and guidance to manage their farms to reduce GHG emissions to net zero by 2030. Carbon sequestration will be one of the outcomes to attract payment under the revised farming support scheme.
• We will set rigorous targets for GHG reductions, to reduce emissions to zero by 2030 across the Food and Agriculture System to cover farms and the whole supply, manufacturing and distribution system including imports.
• We will promote a move to a diet with significantly less meat consumption that will require fewer farm animals reducing emissions from ruminant digestion and releasing areas of grassland for crops, forestry or wildlife.
• We will introduce a carbon tax and this will apply both to agricultural inputs and to agricultural products based on the net greenhouse gases released during their production.
• We support the development of appropriate renewable energy systems on farms; we will monitor the growing of crops specifically for fuel.
• Lowland peat soils are vulnerable to erosion and carbon loss; we will support applied research to ensure that they are managed in a manner that reduces GHG emissions and returns them to being net sequesters of carbon.

Replace with:

New FA301 Food, Agriculture and Climate Change – climate change is the most profound challenge facing the planet. Agriculture and food production in 2020 accounted for some 10% of UK greenhouse gas (GHG) emissions. Soil is the most important carbon store in the UK.
• All farmers will be supported through advice and guidance to manage their farms to reduce GHG emissions to net zero by 2030. Carbon sequestration will be one of the outcomes to attract payment under the revised farming support scheme.
• We will set rigorous targets for GHG reductions, to reduce emissions to zero by 2030 across the Food and Agriculture System to cover farms and the whole supply, manufacturing and distribution system including imports.
• We will promote a move to a diet with significantly less meat consumption that will require fewer farm animals reducing emissions from ruminant digestion and releasing areas of grassland for crops, forestry or wildlife.
• The carbon tax will be applied both to agricultural inputs (such as diesel and fertilisers) and GHG implications of long term land use changes by extending planning system to rural land (see EC777).
• Land management subsidies will be adjusted to discourage GHG intensive farming practices and encourage Carbon sequestration in soils and wetland.
• We support the development of appropriate renewable energy systems on farms; we will monitor the growing of crops specifically for fuel.
• Lowland peat soils are vulnerable to erosion and carbon loss; we will restore them to being net sequesters of carbon (see LD403a).

FA301 has been changed so that:

- Lead paragraph to make it clear that 10% of emissions applies to 2020.

- The fourth paragraph has been changed to say how the carbon tax applies to farming. See further discussion under EC777
- The new fifth paragraph has been introduced to clarify that farming subsidies will have a big role in reducing carbon emissions and supporting carboon sequestration
- The last paragraph is modified to align with a much stronger peat policy introduced in LD403a

But there are further changes to this policy that need to be considered.

The 1st bullet describes getting each? farm to net zero by 2030. I am not sure with the land use changes we are proposing that this is possible. If a farm is on peat, it takes quite a while even after restoration of the land to become net zero. If the farm is to achieve it with land use change to forestry this also takes time to achieve. If there are cows or sheep on the land there is next to no chance of achieving this. If the cows and sheep are retained they belch methane. And if they are removed any change from grass land usually results in emissions in the transition period.

As a further issue with the first bullet, we need to determine whether the carbon tax is paid on emissions and is a payment on sequestration. So if the farm emits some CO2e, and sequesters the same amount, there is no carbon tax to be paid. This is subject to further discussions about how carbon tax is to be applied on land use.

The 2nd bullet is even more ambitious and less clear how it will be achieved - see Climate Change thematic discussion.,.

The 65th bullet in the revised policy is impacted by the land use change as there will be less waste for renewable energy. We may want to be stronger on the growing of crops for fuel - see EU545 for consistency.

The 6th bullet is weak. It does not suggest any actual change of use of the lowland peat soils, just research.

FA302 Agriculture and Forestry – we are committed to planting more trees; this will help to combat climate change and to enhance opportunities for wildlife. The Food and Agriculture Policy is compatible with the Forestry Policy which will require extensive areas of farmland to be planted with trees. We will increase overall UK tree cover to the EU average (FR600).

Note the reference to FR600 and EU average tree cover. As discussed under FR600 this may not be the right tree cover to achieve the balance of land cover proposed by these policies and so may require change.

FA304 Agriculture and the Management of Natural Resources – Some 70% of UK land is farmland and farmers have a responsibility for the impact of how they manage the land on the whole ecosystem. Farmers will be supported through both advice and the use of public subsidy to manage their land to use natural resources responsibly.
• Farms should be managed to hold water in times of excess and to prevent rapid run-off and potential flood risks.
• We will reduce the use of artificial fertilisers and sprays and ensure that slurry and other waste material is managed effectively so that water courses are not polluted with nitrates or other harmful chemicals and greenhouse gas emissions are minimised
• Water is a scarce resource, particularly in some parts of the country, and should be used sparingly; we will support research into the use of drought resistant crop varieties and promote systems (such as rainwater harvesting) that make best use of available water.

We need to have a clear view on how the land changes proposed are to be achieved. Are these via subsidy, enforcement, taxes, public ownership. We need a clear narrative on this and then may need to change this.

Current FA602 Healthy and Sustainable Food Standards

• We will support a progressive transition from a diet dominated by meat and animal products to one with a higher proportion of plant-based foods by public education and the operation of the carbon tax.

• We will establish a well-funded, strong, independent body to research and to act on all issues related to food distribution and consumption; it will work across all government departments to promote safe and healthy food.

• We recognise that many people are currently not able to access healthy food at affordable prices. The ultimate aim is to secure food justice and a right to food by tackling firstly unfair food systems as outlined in this policy, and secondly via the Basic Income and Living Wage policy ensuring that everyone has sufficient income via fair wages and benefits to make healthy sustainable food choices. Whilst in transition we will give extra support to schemes which address food poverty and help with access to healthy food whilst recognising these do not address the underlying causes of food poverty and food inequality.

• We support Sustainable Food Cities and other initiatives to secure the availability of healthy, sustainable food at reasonable prices.

• We will support programmes to promote healthy eating and monitor their effectiveness.

Replace the first bullet:

Current FA602 Healthy and Sustainable Food Standards

• We will support a progressive transition from a diet dominated by meat and animal products to one with a higher proportion of plant-based foods led via public education, public procurement and the impact of carbon tax (see EC777) and subsidy changes on intensive meat and dairy production.

The first bullet has been changed:

- To reflect the reduced focus on carbon tax which is further explained in the commentary on EC777
- The increased importance of the subsidy system

12. Forestry

Current
Objectives
FR200

1. Sustained cooperative relationship between public and private estates.
2. Increase the area of cover in the UK to average cover across Europe.
3. UK self-sufficiency in forest products.
4. Optimise the quantity and quality of all forest products.
5. Increase the involvement, employment and enjoyment of local communities.
6. Maintain and protect ancient woodland and priority habitats.
7. Protect and increase the Public Forest Estate (PFE).

Replace with:

New
Increase the area of cover in the UK to be between 30% and 40% in 20 years, meeting these forestry objectives within the context of the land use key outcomes. (See LD100):

- Sustained cooperative relationship between public and private estates
- UK self-sufficiency in forest products and forestry products to displace some fossil fuel based products (eg plastics).
- Optimise the quantity and quality of all forest products.
- Increase the involvement, employment and enjoyment of local communities.
- Maintain and protect ancient woodland and priority habitats as well as increasing biodiversity, abundance and soil health.
- Protect and increase the Public Forest Estate (PFE).
- Increase the area of fruit and nut trees
- Increase the biomass of living trees for carbon sequestration and remove pinewood from peatland to eliminate emissions
- Allow for the use of forest residue and waste wood as well as some plantation for energy

We are proposing the changes to the Forestry objectives so that they meet the overall land use objectives.

Note that this includes bullet 2 to be self-sufficient in forest products. At the moment the UK imports 80% of its forest products and so we have a long way to go to be self-sufficient. Part of the self-sufficiency is to be achieved by reducing demand (e.g. not importing wood products) and part is to be achieved by increasing production. The Land Use Change Scenarios in chapter 5 show how far this can be achieved. See further discussion on what is possible in the Biotic Resources section.

The original policy, objective 2, was that the area of cover in the UK should equal the average of that of Europe, which is about 37%. Instead, the amount of forestry and woodland should be driven by other factors rather than trying arbitrarily to match that of Europe with its very different social, geographical and political mix. Thus we are suggesting a re-wording subject to confirmation by the proposed land use change scenario .

FR400 A Green Government will ensure that the PFE remains in public hands and will be constituted as land held in trust for the nation, with Trustees and Ministers accountable to Parliament.

No change proposed.

Current FR401 A Green Government will drive the expansion of the UK estate/tree cover, through three component parts:

- Forest Services, to manage the land cover of the PFE, allocate grants, enforce regulations and implement and police pest control.
- Forest Research, to oversee and coordinate research through the PFE, academia and the commercial sector.
- Forest Enterprise, to manage the PFE sustainably, plant, grow and fell standing timber, sustain balanced supply chains and encourage access

New FR401
FR401 The expansion of the UK estate/tree cover, shall be driven through three component parts (in addition to other policy levers described in LD600)).

- Forest Services, to manage the land cover of the PFE, allocate grants, enforce regulations and implement and police pest control
- Forest Research, to oversee and coordinate research through the PFE, academia and the commercial sector
- Forest Enterprise, to manage the PFE sustainably, plant, grow and fell standing timber, sustain balanced supply chains and encourage access."

The existing policy levers proposed by the Forestry policy are maintained but it will be the land policy levers that will be relied upon to deliver the bulk of the change of land use.

Current FR600 A Green Government will facilitate an increase in overall tree cover so that it reaches a level that is on a par with average coverage in countries across Europe, consisting of unmanaged forest and woodland; harvested forest and woodland; unharvested (but managed) forest and woodland; short rotation forest and woodland; short rotation coppice; and agroforestry.

We propose to change this:

Amended FR600 An increase in overall tree cover shall be facilitated so that it achieves the objective in FR200, consisting of unmanaged forest and woodland; harvested forest and woodland; unharvested (but managed) forest and woodland; woodland; open canopy woodland; and agroforestry.

This has been changed to align with tree cover in FR200 (Objectives). The allocation of extensive land for Short Rotation Coppice and Short Rotation Forest has been removed, but there will still be some bioenergy production - see Land Use Change Scenario. Open canopy woodland is proposed as this will take a considerable land area and so has been included in the list.

Current FR601 There will be a strong presumption against the permanent removal of woodland; any loss will be balanced by equivalent forest and woodland creation elsewhere, under the ultimate supervision of the UKFWC.

UKFWC means UK Forestry and Woodlands Council. The role of the UKFWC needs to be related to the Commons Trust in LD303. This policy will be linked to LD500 so that it reads:

Amended FR601 There will be a strong presumption against the permanent removal of woodland; any loss will be balanced by equivalent forest and woodland creation elsewhere, under the ultimate supervision of the UKFWC. (See LD500)

FR603 Furthermore, the planting of new forest and woodlands will be prioritised towards Grades 4 and 5 agricultural lands and land classified as 'severely disadvantaged'.

No proposed change.

Current FR700 A Green Government will facilitate extensive planting of short rotation forestry and coppice for energy production.

Replace with:

Amended FR700 A Green Government will facilitate planting of short rotation forestry and coppice for energy production, where land use priorities allow (see LD401).

Policy FR700 has been interpreted as having ~4 Mha of land for bioenergy production in the UK. From the proposed land use change scenario, it seems unlikely that land will be available for extensive planting - more like ~0.4 Mha. Some use of forest residues and waste woods is OK for using for energy, but this is not primary land use allocated for energy - see new FR701 below.

New FR701 Forest and sawmill residues can be used for energy production, where not better applied to preserving forest soil health and biodiversity or other wood products

Current FR800 Supporting Green Party Industrial Policies IP202 and IP241, and climate change policy CC260, a Green Government will work to reduce UK imports of timbers that can be grown in the UK to zero, and also promote a 'Wood First' policy in all new buildings and in retrofitting existing ones.

Replace with

Amended FR800 Supporting Green Party Industrial Policies IP202 and IP241, and climate change policy CC260, UK imports of timbers and wood products that can be grown in the UK shall be reduced to net zero, and also a 'Wood First' policy in all new buildings and in retrofitting existing ones will be promoted.

Note this has been made net zero imports rather than zero imports. We also want to cover all wood products and not just timber in the policy.

The challenge with this policy is that at the moment the UK is a big net importer of timber and wood products in general. There is a longer discussion on how soon this is possible in the thematic discussion on Biotic Resources . This covers other products such as plastic products that may ideally be replaced with wood based products in the long term.

Current FR1400 A Green Government will fund innovative and targeted research, including different timber species' strengths and utility; CO2 sequestration potential, future planting needs and species suitability under climatic changes; mapping research on land areas most suited to energy creation, food growing, urban growth and conservation; planting opportunities mapping; research into organic pest control; climate emergency adaptation and resilience opportunities, particularly flood mitigation.

We need to link this policy to Land use policies (LD600). So that it is replaced by:

Current FR1400 A Green Government will fund innovative and targeted research, including different timber species' strengths and utility; CO2 sequestration potential, future planting needs and species suitability under climatic changes; mapping research on land areas most suited to energy creation, food growing, urban growth and conservation; planting opportunities mapping; research into organic pest control; climate emergency adaptation and resilience opportunities, particularly flood mitigation (see LD600).

13. Housing

HO401 A key plank of the Green Party's national housing strategy would be to improve affordability by stabilising house prices and rents so that there is no further real terms growth in housing costs. In the least affordable markets we would seek to effect a gradual and managed real-terms decline in house prices until average prices are below four times average incomes. A major contributor to high and rapidly rising costs has been excessive demand, in addition to rising incomes and, in some housing markets, a growing population. Reducing excessive demand requires a range of policies covering taxation, the money supply, regional economic development, and housing provision:
a) gradually introduce a Land Value Tax (see LD400) to reduce profits from speculation on existing homes and development sites, and in the short term increase the amount of land held by Community Land Trusts (see HO513-514);
b) deter speculative investors by introducing rent controls and more secure tenancy agreements (see HO519), abolishing any national and/or local tax breaks for Buy-to-Let investors and landlords that relate to mortgage and purchase costs (see HO521), and banning the purchase of residential property by people who are neither British citizens nor resident in the country (see HO531).;
c) ensure there are no incentives for owning multiple properties over one, through policies such as requiring council tax premiums on second homes and long-term empty homes (see HO603), and introducing a new planning use class for second homes (non permanent residences) so that planning permission must be sought if homes are built or bought for that purpose, enabling local authorities to control their proliferation;
d) introduce a new duty for the Bank of England to constrain house price growth through its monetary and financial policy levers, rather than allowing finance to push up prices as has happened in recent decades through policies such as quantitative easing and cheap credit, aiming for house price stability while balancing this with other objectives;
e) abolish policies such as Help to Buy that subsidise demand and so push up prices.
f) to reduce the pressure on overheated housing markets such as London and the South East, we would seek to better distribute economic activity across regions and between rural and urban areas, particularly those with large numbers of long term empty homes, and the reduction of income

inequalities, key priorities in our housing and economic strategy (see for example IN302-304 and IN410-414);
g) use forms of housing provision where affordability can be guaranteed irrespective of the wider market conditions, such as social and co-operative housing, and encourage self-build and custom-build that directly meets peoples' needs while empowering the builders/occupants (see LP514).

The parts relevant to land use are in point a about Land Value Tax which is addressed more fully in the Economics policies. Point f raises the issue of regional land use policy which is addressed in the spatial strategies policy levers.

Replace the reference to LD400 (LVT), with a reference to EC780, where the substantive policy sits.

Amended HO401 A key plank of the Green Party's national housing strategy would be to improve affordability by stabilising house prices and rents so that there is no further real terms growth in housing costs. In the least affordable markets we would seek to effect a gradual and managed real-terms decline in house prices until average prices are below four times average incomes. A major contributor to high and rapidly rising costs has been excessive demand, in addition to rising incomes and, in some housing markets, a growing population. Reducing excessive demand requires a range of policies covering taxation, the money supply, regional economic development, and housing provision:
a) gradually introduce a Land Value Tax (see EC780) to reduce profits from speculation on existing homes and development sites, and in the short term increase the amount of land held by Community Land Trusts (see HO513-514);

HO402 Housing strategies should set out targets for the provision of housing, which shall be sufficient to meet the needs of the current and future population, taking account of current levels of homelessness, overcrowding, concealed households, affordability, inadequate or unsuitable housing, and households unable to meet their housing needs without some form of assistance, and taking account of empty homes, second homes, under utilising housing and buildings, the need to protect land for habitats, industrial and commercial uses, and recreation. Targets shall take account of the current population, and forecast changes to the population's size and composition. Our chapter on population sets out related policies to reduce population growth, while emphasising in PP111 that housing must be provided in such a way that respects the rights of new and existing residents.

No proposed changes to this policy. Increased housing space for the population has been taken into account in Category 8 (Built Environment) of the Land Use Change scenario and Housing thematic discussion.

HO409 Strategies should link with local planning policies, to ensure that there are sufficient buildings and land identified to meet targets, while ensuring that planning policy encourages sustainable patterns of development (see LP400-407 and LP505-513).

No proposed changes to this policy.The local planning policies for addressing the regional aspects of this are addressed in the Policy Levers on regional planning policies. Provision of overall land required for buildings is described in the Land Use Change Scenario and Housing thematic discussion .

HO410 Although we expect to build no more new homes than in the decade 2010-2019 we will create more new homes in total by:

- bringing empty homes into use (HO401, HO402),
- retrofitting, converting and extending existing buildings (HO405) and
- reducing demolition rates (HO406).

This effectively puts a cap on the new home builds to about 180,000 homes per year. But this still does require more built environment land use. There is discussion on land for housing in the thematic discussion on housing. Note that there may be an amendment to this policy when the Housing Voting Paper ([28]) is proposed or as part of the Land Use Voting Paper.

HO512 The Green Party would support community and co-operative enabling bodies at the regional or county level, as appropriate. These would provide technical support in areas such as legislation, business planning, governance, accounting, land acquisition and development, and provide seedcorn funding to communities wishing to establish a new community led housing organisation or project.

No proposed changes to this policy. The issue of land acquisition needs is addressed in the Policy Levers section.

HO514 Where public land is used for the provision of housing, it should either remain in public ownership or be transferred to a Community Land Trust to preserve it as a community-owned asset. Where any public land or homes that are transferred to a co-operative, a legally binding non-demutualisation clause should be written into the contract.

No proposed changes to this policy. The issue of public land and ownership needs is addressed in the Ownership and Stewardship section.

HO516 In the medium-to-long term, co-operative ownership models will supplant existing shared ownership models to prevent affordable house prices from rising faster than average incomes, complementing policies on Land Value Taxation that suppress housing market price rises (see EC791).

No proposed changes to this policy.

HO527 Support for 'low cost home ownership' schemes such as Shared Ownership would be phased out. These often represent poor value for money, tie occupants into uncompetitive mortgages and can be difficult to sell. They would be replaced by co-operative home ownership models (see HO516) and in the long term made unnecessary by policies to bring down prices such as Land Value Taxation. Existing shared ownership leaseholders who are evicted shall be entitled to their share of the market value of the property.

No proposed changes to this policy. Land Value Tax is addressed in the Economics Policy section.

HO603 As an immediate response to concerns about the fairness of Council Tax, and to the growing housing crisis (particularly in London and the South East), Greens support the following modifications to Council Tax/National Non-Domestic Rates (NNDR):
a) introduction of mandatory premiums on long-term empty properties (left empty for more than six months) or underused properties, including business premises and second homes, the level of which to be determined by the local authority, with the exception of the single person occupancy discount for pensioners;
b) creation of new Council Tax bands above H to ensure that as property values get progressively higher so does the tax paid on them;
c) reform of the multiplier rates applied to the bands, to make the tax paid more proportionate to the value of the house;
d) all land holding bodies, public, Housing Association or private, shall be made liable for the payment of Council Tax/NNDR for all properties under their control (although this should not affect reliefs currently given to charities, non-profit making bodies and small rural businesses).

No proposed changes to this policy. The part of this policy relevant to land use policy is point d. See the Economics policy for Land Value Tax.

14. Industry

IN212 The nature of some industrial sectors must change, such as from resource extraction to the 'circular economy'. For example, landfill and incineration will shift to reuse, repair and high-value recycling. Similarly, fossil fuel extraction must be replaced (not supplemented by) investment in renewable energy solutions. This will affect the nature of the markets for some products – such as increased leasing and extended product warranties. Unsustainable industries should be discouraged by using green taxes, enhanced regulations and standards and ecolabelling (see below).

No changes proposed to this policy.

IN214 New Industry areas will need to be developed and will create significant new employment, particularly in small and medium-sized enterprises. Innovation is needed to deliver sustainability while reducing overall energy production and consumption (positive energy return on energy invested). Government should prioritise investment in sustainable industries to deliver zero waste, zero carbon and localisation of transport sector (see hierarchy in PSS section).

No changes proposed to this policy. Note that these new industries will require land. This may be ex-industrial land to be retained as industrial land rather being used for new housing.

IN401 The National Spatial Strategy will ensure individual planning and investment decisions add up to a national plan that is socially and environmentally sustainable

Replace with:

IN401 The National Economic Spatial Strategy will ensure individual planning and investment decisions add up to a national plan that is socially and environmentally sustainable.

Renames National Spatial Strategy to make clear it is economic rather than land use strategy.

IN402 The national spatial strategy will replace the current failed market mechanisms with a planning system that is locally and democratically accountable, not to banks or speculative financial institutions. This will prioritise retention of agriculture, commonly owned land and wildspace in the UK. We support extension of these land designations (rather than reclassification to reduce them, such as being proposed for the Green Belt in many locations) in the UK. This strategy will focus on urban regeneration, reversing the current trend to convert rural sites to industrial and urban areas

Replace with:

IN402 The National Economic Spatial Strategy will replace the current failed market mechanisms with a planning system that is accountable, not to banks or speculative financial institutions, but democratically to communities. This economic spatial strategy will, along with spatial strategies outlined in the Land Chapter (LD400), steer spatial planning (LD500) to deliver the key outcomes laid out in LD100. These new spatial strategies will fill the void created by the revocation of the Regional Spatial Strategies, so that the 'Duty to Cooperate' principle extends to a national level.
Reported to clarity, to cross reference new land chapter and incorporate what was previous IN403.

IN403 This will fill the void created by the revocation of the Regional Spatial Strategies, so that the 'Duty to Cooperate' principle extends to a national level, ensuring that the overall nature of development is both socially and environmentally sustainable.

Delete as now part of IN402

IN404 This will include incentives to financially prioritise the refurbishment of existing buildings and suitable brownfield sites, and support the transition of rural communities from commuter towns to sustainable communities. New green jobs will be actively created by prioritising development of sustainable rural livelihoods and locally sustainable enterprises across the UK rather than speculative development focused in existing job-rich areas. This will include incentives to promote clustering of zero carbon, zero waste enterprises in new social enterprise zones – to encourage sustainable enterprises to replicate and co-locate.

Replace with:

IN403 The National Economic Spatial Strategy will:

- *Create new green jobs by prioritising development of sustainable rural livelihoods (See XXXX) and locally sustainable enterprises across the UK rather than speculative development focused in existing job-rich areas.*
- *Delivering industrial activities required for rapid transition to zero carbon.*
- *Support the transition of rural communities from commuter towns or retirement towns, to more self-reliant, diverse sustainable communities.*
- *promote the clustering of zero carbon, zero waste enterprises in new social enterprise zones.*
- *Design national and regional resilience into our economy.*
- *prioritise the refurbishment of existing buildings and suitable brownfield sites to deliver new houses and business spaces.*

Reword to only cover economy spatial strategies and cross reference to land spatial strategies. Put in bullet points to make clearer.

IN408 Current land rights encourage unsustainable industrial activity (see LD203-6). A Land Value Tax would redress this problem. (see LD400-3 and EC791-3).

This policy references the Land chapter which is being re-written. Reference the new land chapter paragraphs LD601 and LD605.

IN615 Numerous treaties designed for eco-crisis management have failed to bring far reaching improvements. The problem is not one of understanding but of enforcement. This role needs to be carried out at the national level (see PL410) and aided by a new European Environmental Agency (EEA). As well as enforcement, the EEA should aim to provide well researched information and to establish standards. It must be well resourced to ensure that standards can be enforced. Funds should be diverted from the Common Agricultural Policy (CAP).

This policy needs to change as it refers to the Common Agricultural Policy and this is now being replaced. In the context of land use taxes and subsidies, we need to determine the impact of this in the context of successors to CAP.

15. Local Planning & The Built Environment

LP100 There will always be competing demands for the finite resource of land. A free market in land would give undue power to wealthy landowners and rich buyers, and would lead to unsustainable patterns of development. This has been recognised since the establishment of the first green belt in 1935, and the introduction of the Town and Country Planning Act 1947.

This is background and does not need to change. It covers two land use topics that address land use. These are land ownership and Green Belt.

LP101 However, the half century following the introduction of the Town and Country Planning Act 1947 has seen three policy failures. First, unsustainable patterns of development have prevailed, though less than if there were no planning controls at all. Of particular concern has been the development of prime agricultural farmland and important natural habitats, low density suburban sprawl that makes sustainable lifestyles difficult, and energy-inefficient buildings. Second, rising housing costs, overcrowding, a greater reliance on housing benefit, and fewer households being able to live near their place of work or their family. Third, and partly as a consequence of flawed national economic and industrial policies, in some parts of the country the permitted use of land for diverse and sustainable employment uses has been eroded by conversions to other uses.

No proposed changes to this policy.

LP160 In order to create a zero carbon infrastructure some areas of construction, such as housing retrofit and electricity system, will need to expand. To keep construction emissions down other areas of construction, such as new offices, shops, entertainment sites and warehouses, must be drastically reduced.

No proposed changes to this policy. Note that the building of offices, shops etc all contribute to increased land use and this policy makes it clear that we are limiting this non-domestic aspect of urban land use.

LP202 [Long Term Aim:] To protect land and green infrastructure providing other human uses that are essential to the national and local community, such as floodplains, farmland and national parks.

No change proposed.

LP301 [Short Term Aim:] To improve the permitted use of land to meet local needs such as housing and local manufacturing and production, without prejudicing long-term aims.

No change proposed.

LP405 The Green Party strongly supports land designations which prevent inappropriate development on National Parks, the Broads and Areas of Outstanding Natural Beauty, natural habitats of local, regional, national or international importance, sites of special scientific or archaeological interest, and ancient woodlands.

No change proposed.

Current LP407 The Green Party strongly supports the provision of green belts to contain urban sprawl, to maintain the separation of settlements, to protect prime agricultural land around settlements, to encourage urban regeneration and compact towns and cities, and to complement the ecological and cultural value of other designations listed in LP405. The Green Party would put a greater emphasis on the green belt's use for wider sustainable built environment considerations such as flooding, biodiversity, agriculture, energy production and sustainable transport. The local authority role in reviewing and protecting their green belt is set out in LP510.

Amend to prioritise the land uses that may be designated so that it reads

"**LP407** Land designated as Green Belt should be used to contain urban sprawl, to maintain the separation of settlements, to protect prime agricultural land around settlements, to encourage urban regeneration and compact towns and cities, and to complement the ecological and cultural value of other designations. Green belt should be used to make the sustainable built environment more resilient to flooding, make space for biodiversity, agriculture, energy production and sustainable transport in line with land use prioistation set out in LD401. The local authority role in reviewing and protecting their green belt is set out in LP510."

LP505 Local planning authorities have a duty to implement their Local Plans within the constraints of the existing built environment and land they oversee, and within carbon budgets set at national and regional levels. This provision should meet the need identified in housing strategies (see HO401-409).

This may be extended to cover land use. Land budgets will be set at national and regional levels and these will be given to the local planning authorities to implement within their local areas.

LP506 As far as possible, the demand for new urban land should be minimised through a combination of demand-reduction policies (see for example HO401) and through optimising densities. Land value taxation would create incentives to bring forward empty brownfield sites for development, and local authorities would be given stronger powers to tackle remaining land hoarding (see LP516) . Any development of present settlements should be confined within the existing boundaries where possible, and where a loss of countryside is deemed necessary it should go on the least sensitive land that is most accessible by public transport, cycling and walking to existing economic and social facilities. The

maximum environmental value should also be obtained on land used for development, for example by integrating natural habitats into solar farms or on rooftops.

No change proposed. See the thematic discussion on housing for optimising densities. See the thematic discussion on solar farms in the Energy Policy (EN017) and Energy thematic discussion

LP507 Local authorities should make use of existing buildings and small sites, which are often overlooked or undervalued in the current land availability assessments. Retrofitting existing building fabric and creating dense infill developments could significantly offset the need to build on larger brownfield and greenfield sites that provide natural habitats.

No change proposed.

LP508 To protect wildlife, the Green Party would require any release of land for development to follow the mitigation hierarchy of 'avoid, mitigate and compensate'. The impact on other natural habitats should be avoided wherever possible and where damage cannot be avoided it should be mitigated (e.g. via housing or infrastructure design, translocation of species or repair of damaged habitat). Finally, any unavoidable residual loss of replaceable habitat should be compensated through offsetting to ensure no net loss for biodiversity in and around the location of the development. Irreplaceable land uses as outlined in LP405 would not be subject to this offsetting policy. Developers should also look to understand and compensate for the social or amenity value of lost green space to local communities. The offset should be based on a robust, independently verified set of metrics. Links between housing, planning and environment strategies should be identified so that any offsetting contributes towards broader local and regional objectives.

No change proposed.

LP509 While the policy of 'brownfield first' is supposed to consider the environmental value of brownfield sites, too many valuable habitats for other species are identified for development. The Green Party would give wildlife-rich brownfield land greater protection following the approach set out in LP508, and require local authorities to review their local plans to remove sites with high environmental value.

No change proposed.

LP510 Local authorities should review their green belt on a periodic basis where they are failing to achieve a sustainable built environment, for example where they are causing sprawl and commuting beyond their bounds, and where there is scope for a more sustainable built environment by building on existing green belt sites, for example near transport hubs. Reviews should seek to achieve the policies set out in LP406-407, ensure no net loss in the quantity and quality of green belt land, and should aim to 'green the greenbelt'.

No change proposed.

LP511 The effects of the climate emergency will mean that it will no longer be practical for the continued use of some sites, including many homes, which are now liable to regular flooding. Such derelict land should be re-landscaped rather than re-developed, and the practice of developing reclaimed marshland should be ended. Central government should also help those who are most affected. Government insurance schemes should be available to offer cover for those refused flooding cover by commercial companies, and there should financial assistance to help with relocation for those whose properties have become uninhabitable or prohibitively expensive to insure.

No change proposed. See Housing thematic discussion for discussion on houses on flood plains.

LP514 The Green Party would empower local authorities to use streamlined compulsory purchase powers to assemble areas with fragmented ownership, and to buy the land at existing use value. We would also support the allocation of more land for self-build. The Green Party would explore how the Land Bank and Community Land Trust models developed in the USA could be used to maximise the benefits from land and property acquisition.

Re-word to make it clear that the allocation of land for self-build is part of the overall area of land allocated for new build and not in addition.

“LP514 The Green Party would empower local authorities to use streamlined compulsory purchase powers to assemble areas with fragmented ownership, and to buy the land at existing use value. A greater proportion of land allocated to new homes should be made available for self-build. The Green Party would explore how the Land Bank and Community Land Trust models developed in the USA could be used to maximise the benefits from land and property acquisition.”

LP515 Local authorities should then develop detailed plans for each development to include carbon budgets, provide the social, environmental and transport infrastructure, and promote good standards of design. They would then sell the land in small parcels for development by private, cooperative, charitable or publicly owned companies at a price that at least recovers their costs. Where this isn’t possible, the local authority and national government should assess the social and environmental case for subsidising development.

No change proposed.

LP516 Where owners of land designated for development in the local plan fail to bring it forward for development in a timely manner, local authorities should exercise compulsory purchase orders in the public interest, to prevent land hoarding.

LP516 will need to be amended to bring it in line with the Draft Voting Paper, but we do not yet have a text.

:

LP517 The Land Registry (which should be publicly owned) would be required to collect and publish an open registry on all land ownership, and open data on land prices by site and hectare. Local authorities would also be required to publish open data on planning permissions with some details of the plans. All other public authorities that collect data on transactions and options agreements would also be required to publish this in an open format. All public authorities considering disposal of land assets would be required to do so transparently, publishing its intention to do so, publishing key financial information after the land has been sold, and exploring options for other public or community bodies to purchase the land (see also HO514).

No change proposed. This is consistent with the new Land Chapter.

LP518 The Green Party would act to diversify the housebuilding industry. This would be achieved in large part through the parcelling of land into smaller plots (LP515), bringing transparency to the land market (LP517), and retaining public land in public or local community hands rather than selling it to big developers (HO514). We would also work with financial bodies listed in HO606 to improve access to development finance for small and medium sized developers.

No change proposed.

16. Marine and Coastal

MC204 All values, rules, and management systems that are employed to best sustain our land area can and should be similarly deployed in the marine environment. So, for instance, conservation designations, environmental impact assessments, planning regulations, etc, should have an equivalent within the ocean.

Replace with

MC204 As outlined in LD502, the planning system should be expanded to cover all land in the UK, and this should include UK territorial water and UK exclusive economic Zone. This means that conservation designations, environmental impact assessments, planning regulations etc, would equally apply to UK land as UK waters.

For UK Territorial waters (12 nautical miles offshore) would be the responsibility of whichever planning authority managed the coastline. The Planning authority in UK exclusive economic Zone (up to 200 nautical miles off coast) would be national government.

It is worth noting that it both cases the Commons Trust would be the ultimate land owners, and in case of UK Exclusive Economic Zone also the body responsible for management and the granting of licences (see LD400 & MC371)

MC307 The Green Party would seek large-scale reform of the Crown Estate (which currently has a monopoly on the sea bed around the UK, and is required to administer this on a purely commercial basis), devolving its powers to more locally-based levels of accountability within government and changing its remit to emphasise long-term environmental sustainability of our marine environment.

Replace with:
MC307 As set out in LD3400, the Crown Estate (which currently manages sea bed around the UK), would be replaced by Commons Trusts. As defined in its purpose, these Trusts would manage the land and sea for their long term sustainability.

MC308 The Green Party believes that management at the EU level (i.e., under the Common Fisheries Policy [CFP]) needs to fundamentally shift from viewing the CFP as an instrument for regulating economic activity, to a policy whose primary aim is to ensure the integrity and sound functioning of marine ecosystems.

No proposed change by the LUPWG, though this probably needs updating in light of Brexit.

MC311 The Green Party would ensure that conservation of the marine environment in the Overseas Territories is funded to a level equal to its global significance.

Replace with

MC311 The Green Party would ensure that conservation of the marine environment in the Overseas Territories is funded to a level equal to its global significance. This will in part happen by the creation of Commons Trusts for each overseas territory along similar lines to Commons Trusts (see LD300) created for the UK.

Does this want revising to create Commons Trust for all UK overseas Territories or will they still remain property of the crown?

MC324 The Green Party would promote action at the European level to ensure that, outside its home waters, the European fleet does not fish to standards that would be unacceptable within the EU. In particular, access agreements should restrict fishing to sustainable levels that respect the environment and the livelihoods of people in developing countries, and effective measures should be rapidly developed to monitor, police and enforce compliance in such fishing.

No proposed change, although needs revising/deleting in light of Brexit?

MC325 The allocation of quotas should be based on long term regional management plans, with input by local inshore fishing fleets and other relevant stakeholders. Those involved in fishing activities should be required to demonstrate that their activities do not damage the marine environment and that they make significant economic contributions to coastal fishing communities. Quotas should be allocated with a bias towards low impact operations and should not be tradable between EU countries. Information on the allocation of quotas should be open and transparent.

No proposed change, although needs revising/deleting in light of Brexit?

MC328 In order to reduce the by-catch associated with fishing, modified gears should be introduced for the entire fleet along with a more comprehensive monitoring regime to ensure compliance and to determine the effectiveness of these measures. Target levels for by-catches per species per area would be set and if these target levels are not met in a particular fishery, then this fishery would be temporarily closed. The Green Party would additionally demand an EU-wide ban on discards at sea, and would support research into the impact of this ban on seabird and marine mammal populations.
MC329 We would press the European Commission to ban bottom trawling, gillnetting and long-lining for deep-sea species in EU waters., either by EU or international fleets. We would promote measures to prohibit destructive deep-sea fishing and would work towards a ban on high seas bottom trawling, and for proper implementation and enforcement under relevant international legislation.
MC330 The Common Fisheries Policy should comply with the EU's Marine Strategy Framework Directive in seeking to return all populations of commercially exploited marine species to within biologically safe limits. It should be impossible to set unsustainable catch limits. We would aim to return catch limits to sizes that are commensurate with the natural productivity from high quality, sustainable marine ecosystems

No proposed change, although needs revising/deleting in light of Brexit?

Off-shore Wind and Marine Energy
Policies
MC373 Prior to the development of any marine energy structure an Environmental Impact Assessment must be carried out. This will include the evaluation of environmental risks of seabed subsidence and the traffic of vessels to and from the platforms, that may result in environmental degradation, and plans for dismantling and disposal of rigs and associated equipment.
MC374 The Green Party will put in place retrospective conditions within the licensing agreements for oil and gas blocks which would allow the closure of individual wells, if as a result of ageing and the consequent increases in the volume of total pollution, loads could not be handled by the treatment/reception facilities. However, the possibility of using old installations for research purposes or as artificial reefs should also be considered.
MC375 All British marine energy and offshore wind companies will be required to meet at least the same standards as required in British waters when they are operating elsewhere in the world.
MC376 We currently know relatively little about the sea bed, except that its biology is extremely diverse and its physics can be stormy. Therefore, installations should not be dumped or abandoned at sea. As a matter of principle, operators should expect when constructing an installation, that they will be later responsible for completely removing it.
MC377 Much tighter environmental controls will be applied to the oil and gas industry where it still exists, and we will require all oil and gas companies to establish an integrated Environmental Management System.
MC378 The Green Party is in favour of harnessing the potential of tidal energy at estuaries subject to environmental and sustainability criteria being met.

Replace with:

Off-shore Wind and Marine Energy
MC371 The issuing of licences for Marine Energy will become the responsibility of the Commons Trusts (see LD300) which will have to balance competing outcomes laid out in LD100 when making such decisions and specifying conditions.
MC372 Prior to the development of any marine energy structure an Environmental Impact Assessment must be carried out. This will include the evaluation of environmental risks of

seabed subsidence and the traffic of vessels to and from the platforms, that may result in environmental degradation, and plans for dismantling and disposal of rigs and associated equipment.
MC373 The Green Party will put in place retrospective conditions within the licensing agreements for oil and gas blocks which would allow the closure of individual wells, if as a result of ageing and the consequent increases in the volume of total pollution, loads could not be handled by the treatment/reception facilities. However, the possibility of using old installations for research purposes or as artificial reefs should also be considered.
MC374 All British marine energy and offshore wind companies will be required to meet at least the same standards as required in British waters when they are operating elsewhere in the world.
MC375 Installations should not be dumped or abandoned at sea. As a matter of principle, operators should expect when constructing an installation, that they will be later responsible for completely removing it.
MC376 Much tighter environmental controls will be applied to the oil and gas industry where it still exists, and we will require all oil and gas companies to establish an integrated Environmental Management System.
MC377 The Green Party is in favour of harnessing the potential of tidal energy at estuaries subject to environmental and sustainability criteria being met.

17. Natural Resources and Waste Management.

NR416 While there will necessarily be local variation, the most promising approaches seem likely to involve:

- i) having a clear hierarchy of waste treatments, with reuse first, followed by recycling and composting, followed by treating the residual waste in non non-polluting ways that produce useful products like biogas and the least possible quantity of inert material for landfill;
- ii) encouraging home composting;
- iii) investing considerable effort in educating and persuading householders to separate their waste into dry recyclables, compostable wastes and residual refuse, and not to place certain hazardous items (for example, paint, pesticides and items containing NiCad batteries) into the municipal waste stream at all;
- iv) aiming to have no more than 20% residual waste, and to recycle and compost more than 80%;
- v) organising kerbside collection of all three streams;
- vi) sorting the dry recyclables either at the kerbside or at a materials recovery facility, and ensuring that the dry recyclables are put to high value uses;
- vii) preferring mechanical and biological treatment and anaerobic digestion, possibly in tandem;
- viii) no incineration of residual waste;
- ix) cautiously exploring the possibility of gasification, but not accepting it if the feedstock contains too many recyclables and if there are pollution risks;
- x) accepting that in the short-term some residual waste after treatment will end up in landfill, but that that waste should be inert and pose no danger to watercourses;

- xi) even without central government specifying it as a responsibility, local authorities looking to reduce, reuse and recycle waste from non-domestic sources within their geographic boundaries.

No change proposed. Point i and x covers landfill. We obviously want to minimize landfill and restrict it to inert matter (eg non-biodegradable). And we have a policy to phase out incinerators (EN014 and NR414). And it will not be possible to entirely get to zero waste immediately (see NR312, NR415) so we need to examine land required for landfill going forwards.

NR421 All mineral rights will be held in trust by the State on behalf of the communities which occupy the land or, in the case of off-shore rights, which border it. Planning consent to exploit minerals will be subject to both local and national agreement. It will be a requirement of such consent that the environmental impact of any work is minimised and for extraction activities to maximise the resources obtained. The affected land should be returned to a similar or improved ecological status.

Replace the reference to the "State" with the "Commons Trust (see LD300)"

NR428 The Green Party is opposed to the private ownership of water, which will have severe environmental and social consequences, and to the implications for land ownership, particularly in upland areas. We believe that the water service should be run with the direct participation of the communities concerned. In the short-term, this means a decentralised system of industrial democracy where the consumers of the service work with those who produce the service towards the following common ends:

- i) the protection of the environment, e.g. the banning of all discharges to water (from point and diffuse sources) of any toxic or bio-accumulative substances;
- ii) the provision of potable quality water for all individual consumers at a reasonable price;
- iii) meeting standards laid down at national and EU level, the removal of Crown exemption, and public debate about all the scientific evidence of the levels necessary to safeguard the environment;
- iv) freedom of information and the direct participation of people at local and regional levels;
- v) an enforcement agency that is free of vested interests, adequately staffed and given the necessary punitive powers.

The Green Party will bring all water resources stored and routed for public consumption, from reservoir to tap, in England & Wales back into public ownership at national level. However, local water resources will be administered and run by democratically elected local bodies based on water catchment areas.

As we are addressing land ownership as part of this DVP, we need to consider this existing policy on water ownership.

18. Peace and Defence

PD312 The Green Party is committed to the early conversion of economic, scientific and technological resources presently used to support the arms race, to socially useful and productive ends. Some military training areas should be decommissioned and used as nature reserves, with suitable provision for access by the public.

No change proposed. Need to address this in the Land Use Change Scenario section to reduce the land area for this category.

19. Pollution

PL102 Pollution is not coincidental to economic activity, but is presently an integral part of it. Frequently it is caused by the activities of one group of people, while its costs and impacts are borne by others and by the biosphere. Economic growth will not stop the greenhouse effect. Increasing population pressure will not generate more land for sustainable food production. Changes of lifestyle and of government in line with the principles of the Green Party are essential to ensure a viable future and an end to pollution.

Whilst there are no present proposals to change this policy, the point it makes on land use for food production and population increase does need to be examined. See Land Use Change Scenario for sustainable food production.

20. Population

PP112 There is a need for regional economic and land use policies that are sustainable with a stable or falling population rather than dependent on a continuing influx of, often exploited, labour from elsewhere in the UK or overseas. The Green Party seeks a more balanced and just approach to regional development in the UK so that there are not huge growth pressures in some areas and none in others.

No change is proposed. This mentions land use policies for a stable or falling population. Within the context this appears to be for the UK, but the land use policies covered by this background paper/ voting paper address an increasing population of the UK, particularly in relation to housing and food production.

21. Public Administration

PA204 The Constitutional Commission will be responsible for keeping the boundaries and structures of local and regional government under review, taking account of the views of local authorities and residents. The aim should be to move towards structures which better reflect the ecology of the land and the character of local communities, and which enable better democratic decision-making and the effective provision of public services. Any significant proposed changes to such structures would be subject to a referendum of all residents affected.

No change proposed. The policies/background in this paper are consistent with this approach. This mentions structures which reflect the ecology of the land. “bioregional” is also mentioned in local planning, LDxxx, PA107 and IN204. But in many other places in policy the term “regional” is used. Maybe this is outside the scope of the DVP, but if we are going to use the term bioregional we could explain what this means in the UK relative to existing regions.

22. Rights and Responsibilities

RR703 In the longer term the Green Party will introduce new legislation which would guarantee proper protection for the nomadic lifestyle of Travellers whilst ensuring that the lifestyle of the settled population is equally protected. This legislation would guarantee limited security of occupation on various forms of public land - limited in terms of number of caravans, length of stay, and factors such as road safety. Where commons or other areas of open land are traditional or customary stopping places for Travellers, there should be a right of residence for up to 28 days irrespective of whether Complying Authority status applied. Where such sites are traditional wintering places, there should be a right of residence between 1st October and 31st March, and no right of residence between 1st April and 30th September.

No change is proposed. It has not yet been taken into account in the land use categories. Possibly it just requires a confirmation (or not) of whether this requires an appreciable amount of land, and into which category it fits. See thematic discussion here.

23. Tourism

TM043 Some areas have many second homes/holiday flats, which are only occupied for a few weeks a year. This produces very limited benefit to the local economy. It is detrimental to the local communities, pushing house prices higher and pricing local people out of the market. The Green Party's policy of Land Value Tax has no reduction or exemption for properties which are left vacant. It will deter the ownership of second 'holiday' homes and encourage greater use of underused buildings. (see EC793)

We may not need to change the substance of this policy. But the link to EC793 is wrong so we may as well correct that - possibly to EC781.

24. Transport

TR022 These strategies would influence demand both at point of use and indirectly through promotion, information, taxation and research. In the longer term this would also include the use of land use controls. They would also act on all aspects of transport and institutional infrastructure, e.g. regulations and subsidies.

Insert, “see land chapter”. Reword final sentence to be clearer what “they” are (strategies or land use controls). Either way, there would be a need to refer to the land chapter.

TR243 To allow for the future extension of rail services and infrastructure, the sale of land by rail authorities would be immediately stopped, pending a review of where future rail provision can be made. Where railway land has recently been disposed of, an early priority will be to investigate how feasible it will be to return this land to rail use.

No change is proposed. No analysis has been made of whether this area of land is significant compared to the land use categories investigated thus far.

TR350 To encourage a large scale transfer of freight to rail, plans would need to be drawn up by national, regional and local government. These would include land purchase, to allow for more capacity and larger trains, including 'piggyback' freight trains that carry delivery vehicles by rail..

No change is proposed. No analysis has been made of whether this area of land is significant compared to the land use categories investigated thus far.

25. Wildlife and Habitats

.An updated Wildlife and Habitats Voting Paper [66] was posted to Green Spaces on 22nd July 2021 for discussion at the Green Party Autumn conference 2021 here. Members of the Land Use Policy Working Group have reviewed this submission and have not found any areas that need to be changed.

26. Workers' Rights and Employment

WR203 Workplace democracy will help us to attain these long-term aims. However, it must go hand in hand with other reforms that deal with discrimination, the power of the state, the ownership of land and the control of information. All these influence our ability to control our working lives, which in turn affects an individual's ability to care for the planet.

See LD200

27. Records of Policy Statements

In addition to policies in the PSS there are also policies in Records of Policy Statements (RoPS). In this overhaul of Green Party Policy we have also inspected RoPS to see what could be incorporated into new PSS policy, which RoPS should be retained and which should be deleted.

The following have been reviewed:

- On Land Grabs (Autumn 2013). This is being referred to PDC for an update, with some evidence from the Land Use PWG.
- High Speed Rail (Spring 2011). No change proposed. A minor part of this is about use of Land. Suggest that we leave this to Transport Policy Working Group
- The Landfill Communities Fund (Autumn 2010). No proposed change as part of this voting paper.
- Climate motion: geo engineering (Spring 2009). No proposed change. The CEPWG are reviewing and we will work with them to ensure it is consistent with proposed land use policy. Not all of this relates to land.

At this time no changes are being proposed to RoPS as part of the Draft Voting Paper.

28. Manifestos

Westminster and European manifestos are part of the Green Party policy set. However it is not clear which of these manifestos is still considered to be policy. For the purposes of this policy review, we only consider the 2019 General Election manifesto (GEM2019) as current Green Party policy (see [45]).

There are changes in these policy proposals that explicitly contradict GEM2019 (as amended by conference in Spring 2021). An example of this is carbon tax on agriculture and land use. There are also underlying assumptions of land use which are altered from that assumed by GEM2019 (eg amount of land for biofuels).

We are not proposing to change GEM2019, but instead assume that these changes take precedence over GEM2019.

9. CONSULTATION

This section will describe the consultation that has been carried out in the process of producing the DVP and VP.

An initial land use consultation was carried out within the GPEW on the way that land in the UK should be categorised. See [7]
A consultation was carried out on Land Use Change Scenarios from GPEW groups.
A report on the collation of responses is at [5] with supporting material at [6].
A consultation was carried out on prioritisation of different categories of land use (link?)

<mostly see that this links out to other documents rather than re-producing or summarising>

To record that we have taken various policies we have into account in formulating policy and also to consult with the relevant Green Party groups.

10. LAND USE POLICY FRAMEWORK

The Land Use Policy Framework (LUPF) is a spreadsheet which accompanies this background paper – see [2]. The data sets are held at [8] and links are also included within [2].

Most of the explanations for the LUPF and references are described within the LUPF itself. But in some cases longer explanations and additional references are required which are placed in this section.

Note this spreadsheet is under continuous refinement as new information is found that allows it to be improved.

1. Naming and conventions

In order to make the formulas in LUPF easier to follow, cells are given names. The first 3 or 4 letters of the name indicate the reference or the sheet from which the numbers derive. This is followed by readable names. The following are used:

- AUK. Names for cells on AUK sheet which are numbers in hectares from Agriculture UK Statistics from DEFRA
- DIET. Names for cells on DIET sheet which are numbers from many sources
- DV. Names for cells on DIET values sheet. The sources are clearly referenced to reference documents on the References sheet via reference labels (eg [5)
- LCM. Names for cells on LCM sheet which are numbers for Land Cover Map in hectares from the UK Centre for Ecology and Hydrology
- LUB. Names for cells within the sheet GP_LU_BASE.
- LUC. Names for cells within the sheet GP_LU_CHANGE.
- Peat. Names for cells on the Peat sheet which are numbers in kilohectares from Centre for Ecology and Hydrology

In order to make the names readable and comply with various spreadsheet conventions, words in the names are separated by underscores (_).

In general inter-sheet references are by cell name. Intra-sheet references are by cell identity (eg C5).

2. README and NOTES and Abbreviations sheets

The README sheet provides additional information about the LUPF as a whole. It includes revision history and instructions on how to use the LUPF to create a scenario - that is a change from current land use areas to different land use areas allocated to sub-categories.

Further information is held in the NOTES sheet.

Abbreviations used in the LUPF are contained in the Abbreviations sheet.

3. References sheet

The LUPF has references to explain where the numbers are derived from them. Many of these are embedded into cells in individual sheets. Not all numbers have a clearly referenced source. There is ongoing work to improve this. Many references are still embedded into cells in a non-standard way. Over time, these are being moved to the references sheet to provide a standard way of handling them.

4. EPM Export sheet

The LUPF is aligned with the Energy Policy Model (EPM) (see [48]). The EPM primarily models the UK's greenhouse gas emissions, the energy use of the UK economy and the investments required to address the Climate Emergency via the Green New Deal. The way land is used in the UK impacts how the Climate Emergency is addressed. Rather than model the land use in both the LUPF and the EPM, the use of land is modelled in the LUPF and outputs from that are exported - via this sheet - to be used as inputs / assumptions in the EPM.

5. GP_LU_CHANGE

This sheet describes a scenario of how current land use is change to a new land use. This is in terms of which individual changes of land use from one sub-category to another. The scenario currently being envisaged as a result of the policies proposed is described in the next section.

6. GP_LU_BASE sheet

This sheet of the Land Use Policy Framework divides the country into different categories of land use which are considered to be politically significant. Most of the explanations are straightforward and come from the three primary sources of Agriculture UK Statistics, Corine Land Cover and the Land Cover Map from the UK Centre for Ecology and Hydrology.

The primary categories are:

- Forest and Woodland
- Wildlife
- Plantation
- Permanent Grassland

- Arable Farmland
- Orchards and Vineyards
- Leisure / Pleasure
- Built Environment
- Other

The most important columns are:

- A. Category identifier. This is used in this background paper to refer to the sub-category
- B. The main category (eg Wildlife)
- C. The sub-category (eg hedge row & scrub)
- G. The area in hectares assigned to the sub-category

Further notes on this sheet:

- Category 2.1 Hedge row and scrub. Within GP_LU_BASE sheet we have calculated that ~2% of farmland is hedges. This has then been applied to the land (according to the Agriculture UK statistics that is farmland which would be expected to have hedges). Land for Green manure is excluded from the calculation as it is not a category in Agriculture UK statistics as there is so little of it now. Most of heather is included in Grouse Moors (category 7.4), but somewhat arbitrarily 5% is included in this category as heather is probably not all grouse moor. This can be refined with further information.
- Category 4.1. Rough Grazing. This includes between 194,867 to 336,000ha rough grazing that is lowland pasture, coastal floodplain and grazing marsh, estimated to be 101,000-200,000 ha. This figure is unreliable because of the nature of such land (see [14]). It also includes approximately 40,000 ha of lowland calcareous grassland that is only of conservation value without the grazing (see [13]). This habitat used to be widespread, but its conservation value is threatened by sheep grazing. It also includes 73,000 ha of lowland dry acid grassland that is semi-natural, having been created as part of managed farmland, mainly low level grazing of bracken and grass. It is of conservation value, especially important for fungi. Also see [15] and [16]. There is 33,000 ha of lowland pasture on historic parkland (see [17]]).
- Category 4.2 Pasture. This includes 17,800-23,800ha, assumed to be 20,800 ha of upland calcareous grassland (which is often rough grazed which destroys it). See [19].
- Category 4.3 Permanent Grassland. This includes 8245 ha of meadow. This comprises less than 1000ha Northern Hay meadows in England and less than 100 ha in Scotland (see [20]). This has been rounded to 1,000 in total. It also comprises 7245ha lowland meadow and pasture (see [22] p163), lowland unimproved farmland (cut for hay, these are the fields we have lost to silage and were once a feature of all farms), nature reserves and water meadows.
- Category 7.1. Leisure/Pleasure. This is derived from the number of horses for 2018 from [23]. On page 3 of [24] it gives the amount of land for each horse as a range with average 0.75 ha for adult horses. 0.65 was estimated for all horses.
- Columns Q to U. These cells were created in order to find LU Base total area discrepancies. They should be retained. They are working cells which don't input into GP_LU_Base areas or other sheets in any way. They only exist for tracing double counting errors to make total LU Base area add up to UK total area. They should be hidden in the published version of spreadsheet.
- Column F is derived from Corine Land Cover. The Corine data needs extensive pre-processing before it can be inserted into this sheet. This pre-processing is described in Appendix 1.

7. SOIL sheet

This sheet addresses the requirement for soil to be fertilised and gives sources for the assumptions. The source of fertiliser has large implications for land use.

Further notes on this sheet:

Peas and Beans Fertiliser. Green Manure is basically growing a group of crops called legumes, and then ploughing the crop back into the soil after it has grown. Peas & Beans are part of the legumes family of plants, so if you grow them and plough them back in at the end of the year, this would essentially be as effective as a green manure crop. If alternatively those peas and beans were harvested this would remove some of the nutrients from the field, hence the 33% effectiveness has been assumed for the fertilising effect to the soil after harvesting the crop. The 33% is an informed rule of thumb based on information in [34] in particular Fig 2 (A) “No N fertilisation”.

8. Peat sheet

This sheet contains specific information on peatlands in the UK. This information is primarily sourced from the Climate Change Committee and the Centre for Ecology and Hydrology.

There are different ways of measuring what peatland is. See, in particular, [44] descriptions of heather and heather grassland. This states that the “Broad Habitat classification treats ericaceous vegetation on peat > 0.5 m depth as ‘Bog’”.

9. DIET sheet

The purpose of this sheet is to go from the food required to feed the UK, through individual crops and their yields to the land areas required. The main purpose of the sheet is to get an approximation of land use required, rather than to be too prescriptive about the diet. Obviously different diets will require different land uses. This sheet uses a low meat and dairy diet to be aligned with the Food and Agriculture policy.

This quite complex sheet largely provides references within the sheet itself in cells and comments. Some values are derived from a separate sheet DIET Values. DIET Values in turn uses references (eg [1]) that are in the References sheet.

The output of foot from the allocated areas of land is in column T (Potential Consumption) and that should approximately equal column S (Eat Well Model outcome) for the UK to be self sufficient in that food item.

The sheet is very dependent on yield values in column H (yield). In particular for Cereals rows. As commented in the LUPF, the Organic Farm Management Handbook (OFMH) ([82]) is used as the primary source for this. It may be possible that some of the cereals can be achieved with Continuous Grain Cropping ([86]). This has yielded 3 t/ha (top of p32) which is good compared with OFMH when no rotation is required. This may have some advantages but is lower than the OFMH values.

Note the OFMH ([82]) has some quite detailed yield numbers for vegetables on pages 135 to 151. Although they are more detailed than the number used in the LUPF, they are in the same ball park. So the OFMH, as the more detailed source, is just used as a back up.

The OFMH on pages 155 to 158 has yields for strawberries (7.3), Apples (11.9) and pears (8) for fruit. The value 10 t / ha has been used to be in this ball park. There may be benefits of extra production from more informal fruit growing (eg hedgerows, garden and street trees etc) but it is difficult to quantify.

The OFMH, page 189, has “Milk from forage” 2 - 4,000 litres per cow. We take this a s the most similar number to the proposed GPEW farming practices. This is rather than the values for high yield cows that are fed on concentrate. We use 3,500, the high end of the range, as we have a fairly small number of dairy cows and so can arrange for them to have better forage, rather than the average of 3,000.

The OFMH, pages 198, 202 and 206 have information that can be used to derive t meat / head for pork, chicken, beef and lamb. These have not been used but largely back up the values in the LUPF.

The sheet matches farm output with food required for the Eat Well diet. The mapping of the Eat Well diet to the categories of food being produced is in the Eat well mapping file at [92].

10. DIET values sheet

The DIET values sheet is an extension of the DIET sheet and has been incorporated to indicate where some of the values in the DIET sheet come from. This is in order not to over-complicate the DIET sheet.

11. RESOURCES sheet

This sheet is currently under construction. Its aim is to give a numerical back up to the numbers contained in the thematic discussions on Biotic Resources.

12. Representing Mosaic Landscape and Co-Use of land in Land Use Policy Framework

The Green Party Land Use Policy Working Group proposes a return to more of a ‘mosaic’ of land uses and mixed land uses like agroforestry. The reasoning for this is discussed in the Biodiversity thematic discussion above. This section aims to explain the link between the Land Use change scenarios (as discussed in the section below) that are presented numerically in the Excel spreadsheet called the Land Use Policy Framework and the appearance of the land once the change has taken place.

The spreadsheet purely assigns x number of hectares to a particular land use type. For example, ~4 Mha to broadleaf woodland. In order to be able to quantify the amount of these land use types the Party is proposing, and model the food, biotic resource, nutrients, GHG and energy implications, it is very important that these changes are represented in the Land Use (LU) Policy Framework. This applies particularly to the LU Change sheet, which the LUPWG uses to model the land use change scenario(s) that are being proposed.

The LUPWG is very aware that this does not represent the physical appearance of the changed land uses. Many policy working groups would like to see land used as a mosaic of mixed habitats, for example, agroforestry or wood pasture. It is important

therefore to bear in mind that although the LU Policy framework is used to define the land use change that we want Party spokespeople to communicate externally, it is primarily an internal tool for the Party's policy community. Once a scenario is agreed in the LU Policy framework, it will need to be presented in documents using both text, tables and visuals (e.g. tile charts or Sankey diagrams) to clearly communicate the significant changes the scenario proposes to the rest of the party (for agreement at conference) and to spokespersons and candidates for communication to the public. A good example of this kind of summary aimed at wider audience would be the LUPWG's 'Convergence Scenarios Document' [75] published ahead of Policy Fest in Jan 2021, although it is worth acknowledging that there is plenty of scope for improving how the proposals for mosaic landscapes are summarized in [75] (only one mention of 'open canopy woodland').

As with other aspects of the categorisation in the land use policy framework, there is no ideal way of representing mosaic land use or mixed use (co-use). All options have pros and cons and, ultimately, the LU Policy framework is just a tool to allow land use policy to be developed and presented. The LU PWG must decide on a compromise solution and stick with it. The danger is that as a Party we end up spending more time discussing how to present our scenario(s) than in working out what it represents on the ground, or what policies are needed to make it happen.

Part of the challenge is that unlike other land uses the party is proposing to increase, such as orchards, co-use and mosaic land uses are much more varied in look and description. Most of these co-uses and mosaic landscapes are primarily about integrating trees and agricultural landscapes. However, because the tree cover can take many forms (coppice/pollarding, harvested/unharvested, broad leaved/coniferous) and the agriculture can take even more different forms (LU Policy Framework has 11 crop types plus 3 grassland types) there is an enormous array of different land uses that could result. On top of these, there is also a range of densities of how these things can be combined, and some also include what the LU Policy Framework refers to as 'hedgerow and scrub'.

There are land co-uses that are mostly pasture or meadow, but with scattered trees or pollards (trees coppiced above reach of grazing animals). Equally there are land co-uses that look much more like woodland, only with an open canopy and areas of scrub and grassland scattered throughout them. There are also the dimensions of altitude, gradient and soil quality which have significant impact on what yields (particularly for agriculture co-use) can be assumed in modelling. There is also the issue that there are lots of different terms used to describe the different subsets of these landscapes and a much less common understanding of them than, for instance, terms like 'orchard'. All of these terms have come up in LU PWG meetings and research:

- Woodland Pasture
- Wood Pasture
- Open Canopy Woodland
- Climax Vegetation (Pre human dominated landscapes)
- Agroforestry
- 'Parkland' (historical term that referred to game parks which were mostly a mix of grazing and trees)
- Rewilding/wilding (Knepp Estate being an example of this)
- 'Forestry' (historically a legal rather than land use definition, but today used to describe areas like 'Epping Forest' which includes cattle grazing in a landscape including pasture and woodland)

Broadly there are 4 main options for representing these landscapes:

A. **Define a mosaic or co-use land category for every different land use we envisage creating** (could be 5/10/15 new categories).

Pros: *Clearer to see in LU Change sheet how to propose more of these landscapes than without them having any categories at all.*

Cons: 1) *We already have almost 30 categories, the more we have the more complicated the spreadsheet becomes, the harder it is for new people to understand it, and the more time it takes to update it. We've spent most of the time since first creating it resisting the addition of new categories. 2) People wishing to propose co-uses of land might be confused by subtle differences between all these similar categories.*

B. **Create 1 or 2 new categories for new land co-use types and give them very specific definition** (but acknowledge these are averages)

Pros: *Clearer to see in the LU Change sheet how to propose more of these landscapes than without them having any categories at all.*

Cons: *Having 1/2 very specific categories could give the impression (with PWG and more widely) that we want to create 1+ Mha of land that looks very similar. This might lead to over-simplification in understanding or policies which don't allow enough flexibility for creation of appropriate co-use landscapes for the wide variety of different landscapes there are in the UK. Mosaic landscapes in Northumberland, Kent, and the Somerset levels might look very different and LU Policy should reconise this.*

C. **Create 1 or 2 new categories for new land co-use types and give them very broad definition** (i.e. 20-80% trees)

Pros: *Clearer to see in the LU Change sheet how to propose more of these landscapes than without them having any categories at all.*

Cons: *It is impossible to model the food or biotic resource like timber produced by land or GHG emissions captured/emitted unless you know roughly how many trees there are, what the stocking densities are likely to be . . . One of the primary purposes of the LU Policy framework is to allow these things to be modeled so we know what the implications of LU scenarios are.*

D. **Don't create any new categories for these land co-uses and instead model them in terms of their constituent parts**. Add notes to each category (e.g. broadleaf harvested woodland) saying how much is part of mosaic land uses (such as agroforestry or open canopy woodland) and how much isn't.

Pros: *Food/GHG/Biotic resources doesn't become harder than it already is. Less risk of talking at cross purposes because of differences in understanding of titles/descriptions of co-use categories.*

Cons: *It is harder to see on inspection of LU Policy Framework how much of these co-use landscapes there are today and how much is being proposed in the scenarios. It means that it is even more important that good summary documents are produced which lay out the co-use / mosaic land uses included in the scenarios we as a PWG agree on.*

In 2020 the LU PWG agreed that D) was the best way forwards, principles in response to discussion around Agroforestry. This led to inclusion for the following text in the README sheet of LU Policy Framework spreadsheet:

> **Agroforestry:** Many Green Party Land Use proposals may include agroforestry, to one degree or another, and it's important that all proposals do this in the same way to ensure comparability. Agroforestry does not exist as a separate category because it, like changes in fertiliser and pesticide use, is a change to how agricultural land is managed, rather than a change to land use type. Clearly the introduction of agroforestry practices, much like other changes to farming practices, will result in changes to crop yields, as well as the addition of a timber yield from the land in question, and this should be taken into account when calculating areas required for different crops (4.1 through 6.1). So if you wish to propose that 50% of cereal crops (Category 5.03) use Agroforestry techniques, then propose a cereal crops area which takes into account the yield changes that would create and then put "50% Agroforestry" in the 'Notes' cell for Cereal Crops (Column AT).

> **Agricultural set-aside:** There are many proposals out there to take land either temporarily or permanently out of agricultural production for many reasons including habitat creation, soil improvement and flood prevention. These all represent a change in land use, even if the area in question is thin strips down the sides of fields. For example: leaving strips of grassland at the side of fields which aren't grazed would be a transfer to land category 4.3 'Meadow'. These strips would likely need to be cut once a year or they would start to turn into scrub or effectively be an enlargement of the hedgerow. In the latter case it would be a transfer of land to 2.1. In the case of temporary set-asides as part of rotations, it might be a transfer of land to 5.07 or 5.12 if used for fodder crops on rotation. Or it might be to 5.02 if used to grow Green Manure. Clearly any one piece of land may move between categories from year to year as part of crop rotations, so the 2nd level Arable farmland categories represent average areas of land use being used.

In June 2021 the LU PWG reviewed this decision to stick with options D) in response to particular discussions about 'wood pasture'.

It is important to remember the objective when making such decisions. The way in which Land Use is discussed and modelled can have real world implications if our policies that flow from them are implemented. We know all too well from climate change policy that if the problem or solutions is oversimplified or looked at in small blocks rather than as an interconnected whole, that action can end up moving problems around rather than actually addressing them (e.g. reducing GHG emission in ways that causes more biodiversity loss). Land use is a really complicated and critical issue that the party must show leadership on. However there is a trade off between getting lost in the complexity and having nothing to say, and oversimplifying which causes more problems further down the line.

The PWG recognises that there is no one size fits all solution to many of the UK's land use issues, and that top down land use planning is both necessary and problematic. The Land use Policy Framework, and LU Change scenario represented in it are both necessary to ensure that GP policy adds up in terms of Carbon, Food, Energy and Biotic resources, but also isn't necessarily very helpful for implementations. Yes it is useful to have national targets for land use to aim for, but the transition will be achieved through a combination of policy levers, most of which are market based carrots and sticks. These must be used to encourage and facilitate local decisions about what the right

‘Sustainable Society' land use system is in any particular area, and this will be in part determined by existing land use, landscape features, existing ecosystems as well as human factors like populations. It is critical that the end, means and communications tools are not confused or conflated.

11. LAND USE CHANGE SCENARIO

As outlined in section 2 of this document there is a need for land use change over the coming decades to meet the objectives laid out in the philosophical bases. How this change can be delivered is explored in section 4.

This section details what the significant land use changes in the scenario are and why they are needed. To see the latest published version of the scenario (see [2]) as a PDF summary and in its raw form in the Land Use Policy Framework s. The PDF summary explains and visualises the politically significant changes being proposed. The Land Use Policy Framework is a spreadsheet which shows all the mappings in hectares along with modelling of diet, soil, peat emissions and biotic resource implications.

Notes:

A. Both scenarios as discussed here and when presented in Land Use Policy Framework spreadsheet are about determining the overall change in land use at a UK level. They say nothing about what land goes where or whether land is converted as part of a mosaic, or in big blocks (see section 10.5 above).
B. The land use change scenario is purely about the primary use of any piece of land and doesn’t cover land management change whilst maintaining the same land use.

1. Priority 1: Biodiversity (including Marine and Coastal)

1. Hedge Rows & Agricultural Set Aside:

~400 kha addition from farmland
~400 kha extra from pasture and rough grazing as part of open canopy woodland

2. Wetlands:

~180 166kha additional from Grassland and Arable Farmland

3. Grouse Moor:

~650 560kha -> rewetted peatland
~300 kha -> open canopy woodland

2. Priority 2: Reducing land emissions

1. Peatland restoration:

~200192 kha of arable land rewetted (100% of arable cropland on peatland).
~200186 kha of pasture rewetted (100% of improved grassland on peatland).
~500 235kha of afforested peatland rewetted (1050% of pine plantation on peat)
~1,2501027 kha of rough grazing/grouse moor (unimproved grassland) rewetted (10082%).

3. Priority 3: Greater food self-sufficiency and biological carbon sequestration

1. Shift to agro-ecological farming combined with diet change and increased self-sufficiency:

~1,000 kha of pasture brought back into agricultural rotations (to allow livestock to provide fertility).
~3 Mha of additional land used for horticulture, legumes and orchards.
~500 kha of green manure

The land use changes aim to reduce dependencies on artificial fertiliser and produce a healthy mix of food types. The above are just headlines. More details of implications are in the DVP Land Use Change Scenario Summary Document. See spreadsheet for more detailed breakdown.

2. New Forestry:

~2.3 Mha of new Broadleaf woodland (some open canopy some closed canopy)
~4300 kha of new coniferous woodland

4. Priority 4: Land for timber and fibre (biotic resources)

1. Timber Production:

In total ~3.4 Mha of harvested woodland.

2. Shift to Natural Fibres:

~150 Kha extra land for oils and fibre production

5. Priority 5: Land for biomass (energy)

1. Biomass for Energy:

~500 kha of rough grazing for Short Rotation Forestry, Coppice and Coniferous Monoculture.

2. New Solar Farms:

~35 ha addition land for Solar PV (234% increase)

6. Other Objectives

1. Land for New housing:

Not get agreed.

12. OTHER DOCUMENTATION

In addition to the more formal documentation that has been referenced in previous sections, there is additional documentation which was created in the process of producing the Land Use VP. This documentation is included here. In some cases the documents are not maintained and may represent the personal view of the author at the time, rather than the current view of the group. These documents are included here if they can add to the general understanding of the topic. The documents may represent angles which were investigated even if subsequently rejected.

- Minutes of the LUPWG are held at [4]. These record the discussions which lead to the voting paper.
- There is an extensive literature library held at [9].

13. REFERENCES

Ref No	Name	Published by	Doc date	Access*	Link
[1]	Policies for a sustainable society	GPEW		24/8/21	Link
[2]	Land Use Policy Framework	GPEW LUPWG	Jan 21	24/8/21	Link

[3]	Land Use Background Paper	GPEW LUPWG	Jan 21	24/8/21	Link
[4]	LUPWG Minutes	GPEW LUPWG	Aug 21	24/8/21	Link
[5]	Call for land use change scenarios – summary of responses	GPEW LUPWG	1/10/20	24/8/21	Link
[6]	Submissions of Land Use Change Scenarios	GPEW various	2020	24/8/21	Link
[7]	Land Use Categories Consultation Response	GPEW LUPWG	25/8/20	24/8/21	Link
[8]	Land Use Data Sets	Various		26/8/21	Link
[9]	Resources and Evidence Base	Various	2021	24/8/21	Link
[10]	Draft Voting Paper	To Be Done			
[11]	Standing Orders for the Conduct of Conference	GPEW	Autumn 2020	24/8/21	Link
[12]	Enabling Motion is Motion E10 in the link	SOC	February 2021	24/8/21	Link
[13]	Lowland Calcareous Grassland	Wildlife Trust Wales	Undated	1/2/21	Link
[14]	UK Biodiversity Action Plan	DEFRA	November16	24/8/21	Link
[15]	Lowland Dry Acid Grassland	Nature Scot	Undated	24/8/21	Link
[16]	Lowland Dry Acid Grassland	Gwynedd Council	2005	24/8/21	Link
[17]	Wood pasture and parkland	Nature Scot	Undated	24/8/21	Link
[19]	Lowland Meadow and Pasture	The Wildlife Trusts	Undated	24/8/21	Link
[20]	Upland Hay Meadows	DEFRA	2008	24/8/21	Link
[21]	LUPWG Constitution	GPEW LUPWG	7/8/20	24/8/21	Link

[22]	Lowland Meadow	The Wildlife Trusts	Undated	2/2/21	Link
[23]	Livestock patterns	Food and Agriculture Organization of the United Nations	2018	24/8/21	Link
[24]	Code of Practice for the Welfare of Horses, Ponies, Donkeys and their hybrids	DEFRA	2009	24/8/21	Link
[25]	CLC2018 Guidelines	European Environment Agency	23/10/17	24/8/21	Link
[26]	Corine Land Cover	GPEW LUPWG	4/4/21	24/8/21	Link
[27]	Green Party Energy Policy Background Paper	GPEW EPWG	Jan 21	24/8/21	Link
[28]	Housing and Local Planning Draft Voting Paper	GPEW CEPWG	20/7/21	24/8/21	Link
[29]	Living With Environmental Change (LWEC) Network, with additional support from the Scottish Government.	Morison, J. I. L. and Matthews, R. B. (eds.) (2016): Agriculture and Forestry Climate Change Impacts Summary Report, © Living With Environmental Change. ISBN 978-0-9934074-0-6 copyright	2016	24/8/21	Link
[30]	The Sixth Carbon Budget: Agriculture and land use, land use change and forestry	Climate Change Committee	December 2020	24/8/21	Link
[31]	Green Party 10 point climate plan	GPEW	20/04/21	24/8/21	Link
[32]	Peat bogs ‘tougher than we thought’	Institute Of Hydrology	16/10/2017	24/8/21	Link

[33]	Paludiculture: Is it time for a new agricultural revolution?	Natural England	2017	24/8/21	Link
[34]	Magnitude and farm-economic value of grain legume pre-crop benefits in Europe	Field Crops Research	April 2015	24/8/21	Link
[35]	Nature Based Solutions Summary	LUPWG	May 2021	24/8/21	Link
[36]	Organic Cotton Market Report	Textile exchange	2020	24/8/21	Link
[37]	Cotton	Wikipedia	18/5/21	24/8/21	Link
[38]	Quick guide to biosynthetics	Textile Exchange	Jan 2018	24/8/21	Link
[39]	Preferred Fiber & Materials	Textile Exchange	2020	24/8/21	Link
[40]	Wood in construction in the UK	Bangor University	2018	24/8/21	Link
[41]	Sustainable Energy Without the Hot Air	David Mackay	29/8/15	24/8/21	Link
[42]	Hydrogen supply chain evidence base	Jacobs	Nov 18	24/8/21	Link
[43]	2050 Energy Visions	RSPB	May 16	24/8/21	Link
[44]	Land Cover Map 2015	Centre for Ecology and Hydrology	22/5/17	24/8/21	Link
[45]	Green Party General Election 2019 Manifesto	GPEW	November 2019	24/8/21	Link
[46]	Hemp Textiles in Britain	UKCIA	March 1996	24/8/21	Link
[47]	Review of the fate of lubricating oils in the UK	AEA Energy & Environment	November 2006	24/8/21	Link
[48]	Energy Policy Model	GPEW EPWG	March 2021	24/8/21	Link
[49]	Peatlands	The International Peatland Society	Undated	24/8/21	Link
[50]	The future of peatland in Scotland : balancing economics	University of York	2018	24/8/21	LinkThe future of peatland forestry in Scotland :

	carbon and biodiversity				balancing economics, carbon and biodiversity
[51]	A forestry boom is turning Ireland into an ecological dead zone	The Guardian	October 2018	24/8/21	Link
[52]	Wetlands	The Wildlife Trusts	Undated	24/8/21	Link
[53]	An economic study of grouse moors	Fraser of Allander Institute	July 2010	24/8/21	Link
[54]	UK Ecosystem Assessment: Technical Report Broad Habitats : Mountains Moorlands and Heaths. UNEPWCMC	United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), 219 Huntingdon Road, Cambridge, CB3 0DL, UK.	June 2011	24/8/21	Link
[55]	Valuing England's National Parks: Final report for National Parks England	Cumulus Consultants Ltd, Broadway	10 May 2013	24/8/21	Link
[56]	Climate Emergency Policy Background paper	GPEW CEPWG	Feb 2021	24/8/21	Link
[57]	Lubricants production	statista	2021	24/8/21	Link
[58]	Renewable Fuel Statistics	Department for Transport	8/8/19	24/8/21	Link
[59]	Land use: Policies for a Net Zero UK	Climate Change Committee	23/1/20	24/8/21	Link
[60]	Greenhouse gas emissions from land-use change	Richards et al	2017	24/8/21	Link
[61]	Mapping Carbon Emissions for Land Use Change	Centre for Ecology and Hydrology	2014	24/8/21	Link
[62]	Managed realignment at	Institute of Civil Engineers	2015	24/8/21	Link

	Medmerry, Sussex				
[63]	The State of Nature	UK National Biodiversity Network	2019	14/8/21	Link
[64]	Climate Change in the UK	The Met Office	Current	17/8/21	Link
[65]	Land use: Reducing emissions and preparing for climate change	Climate Change Committee	15/11/18	23/8/21	Link
[66]	Wildlife and Habitats Policy Voting Paper	Green Party Wildlife and Habitats Policy working group	August 2021	18/8/21	Link
[67]	Our manifesto for rewilding	Rewilding Britain	Current	25/8/21	Link
[68]	Land Use Change Statistics	Department for Communities and Local Government	2010	26/8/21	Link
[69]	London Plan	Mayor of London	2021	26/8/21	Link
[70]	Biomethane: The Pathway to 2030	ADBA	30/4/21	26/8/21	Link
[71]	Digestate factsheet	EBA	Undated	26/8/21	Link
[72]	Fertilizer Statistics	Agricultural Industries Confederation	2020	26/8/21	Link
[73]	Digestate and compost use in agriculture	wrap	Feb 2016	26/8/21	Link
[74]	Yara Fertilizer Industry Handbook	Yara	Oct 2018	26/8/21	Link
[75]	Convergence Scenarios	GPEW LUPWG	Jan 2021	26/8/21	Link
[76]	Rebirding	Benedict Macdonald	2019	29/08/21	Link
[77]	Who Owns England?	Guy Shrubsole	2020	29/08/21	Link
[78]	UK Natural Capital	Office for National Statistics	2021	30/08/21	Link
[79]	England's Peatlands Carbon Storage and Greenhouse Gases	Natural England	2010	30/08/21	Link
[80]	Peatlands and Climate Change	IUCN - Int'l Union for the Conservation of		30/08/21	Link

		Nature Moors for the Future			
[81]	Blanket Bog Land Management Guidance FAQ	Moors for the Future		30/08/21	Link
[82]	2017 Organic Farm Management Handbook	Organic Research Centre	2017	22/9/21	Link
[83]	Organic Handbook Numbers	GPEW LUPWG	22/9/21	22/9/21	Link
[84]	Built for the environment	RIBA		23/09/21	Link
[85]	Guardian		28/04/21	04/12/21	Link
[86]	Continuous Grain Cropping	Land Magazine	2020	06/12/21	Link
[87]	UK Capital Assets: Peatland	Office for National Statistics	22/07/2019	08/12/21	Link
[88]	Peatlands	International Peatlands Society	Not dated	08/12/21	Link
[89]	The future of peatland forestry in Scotland: balancing economics, carbon and biodiversity.	University of York 2018	2018	08/12/21	Link
[90]	A forestry boom is turning Ireland into a dead zone	Guardian	10/10/2018	08/12/21	Link
[91]	Implementation of an emissions inventory for UK Peatlands	Centre for Hydrology and Ecology	2017	08/21/21	Link
[92]	Eat Well Mapping	GPEW LUPWG	2020	9/12/21	Link
[93]	Land Economics Working Papers	GPEW LUPWG	2021	23/12/21	Link
[94]	The crop yield gap between organic and conventional agriculture	Ponti et al	April 2012	27/12/21	Link
[95]	Scotland's peatland - definitions and information resources	Scottish National Heritage Commissioned Report No. 701	2014	29/12/21	Link
[96]	England Peat Action Plan	UK Government	May 2021	01/01/22	Link

[97]	Meat: A benign extravagance	Simon Fairlie	Aug 2011	03/01/22	Link

*The date in the Access column is the date the link to the document was last checked. This enables the authors of this paper to systematically check that the links are not broken.

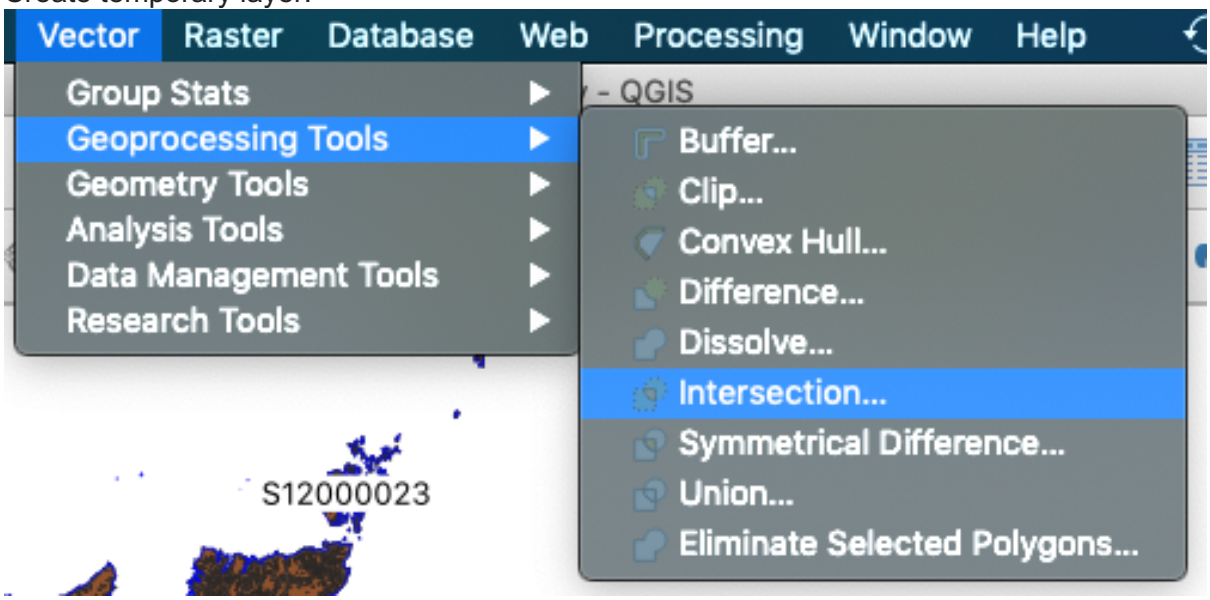
APPENDICES

Appendix 1:Data sources

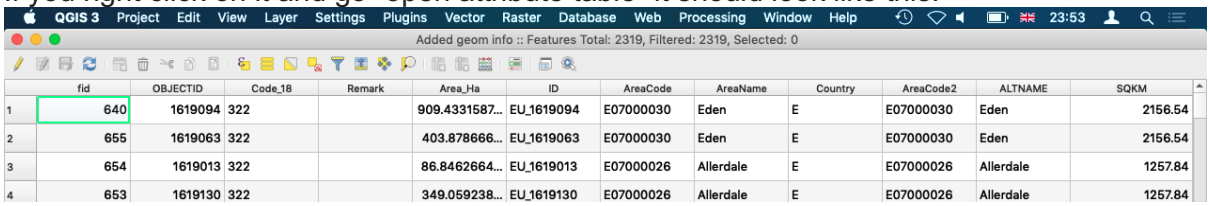
Corine Land Cover

Some of the areas used in the LUPF are derived from the Land Cover Map which is a large geopackage. This external data needs to be processed before it is useful within the GP_LU_BASE sheet. See the Technical Guidelines [25] for further details. The output from this is a spreadsheet which is held at [26] (CLC18_UK…). This contains a sheet which can be transferred to the column F of GP_LU_BASE. The steps to create [26] CLC18_UK are described here:

Download the 3.5GB geopackage from https://land.copernicus.eu/pan-european/corine-land-cover/clc2018?tab=download
To do this you'll need to register for a free account.
Install QGIS 3from https://qgis.org/en/site/forusers/download.html
Download a shape file which defines the limits of the UK. I used UK Local Authority areas:https://osdatahub.os.uk/downloads/open/BoundaryLine?_ga=2.28342076.1877015836.1617140444-2042145090.1617140444 (shapefile or Geopackage will work).
This takes about 1 hour of time (assuming it doesn't take you too long to get your head round the below instructions) and 5 to 8 hours of computer time
Then:
1) Create a new project, and save it somewhere with a sensible name
2) Use Add Layer to Import both the CLC18 & UK local authority boundaries. Use highest resolution versions of both.
3) Intersect the two layers with Local Authority layer as the overlay (this takes 5+ hours).
Create temporary layer.

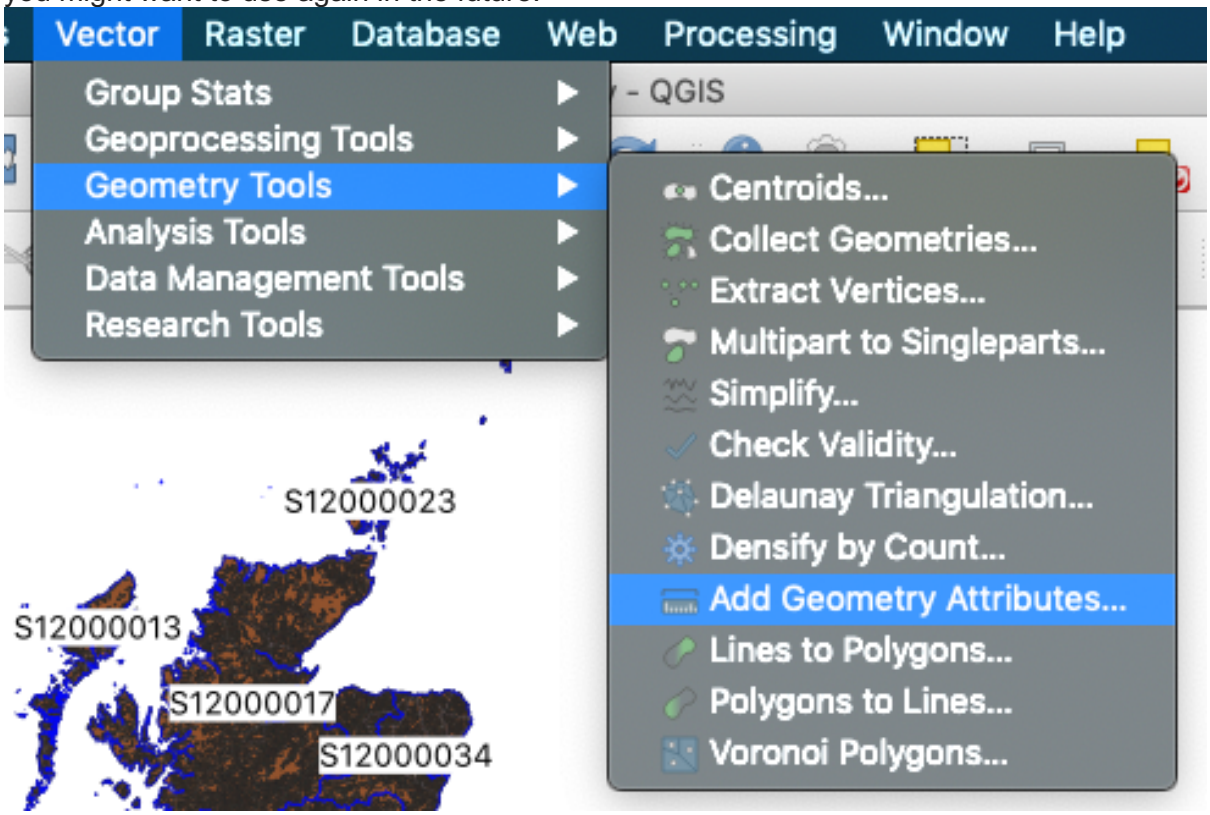


4) Select the temporary layer you've just created.
If you right click on it and go "open attribute table" it should look like this:

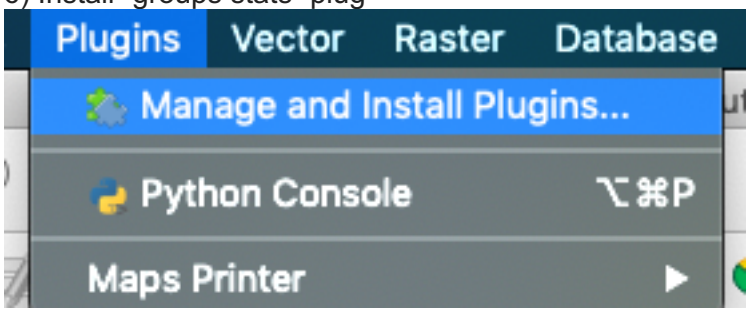


	fid	OBJECTID	Code_18	Remark	Area_Ha	ID	AreaCode	AreaName	Country	AreaCode2	ALTNAME	SQKM
1	640	1619094	322		909.4331587...	EU_1619094	E07000030	Eden	E	E07000030	Eden	2156.54
2	655	1619063	322		403.878666...	EU_1619063	E07000030	Eden	E	E07000030	Eden	2156.54
3	654	1619013	322		86.8462664...	EU_1619013	E07000026	Allerdale	E	E07000026	Allerdale	1257.84
4	653	1619130	322		349.059238...	EU_1619130	E07000026	Allerdale	E	E07000026	Allerdale	1257.84

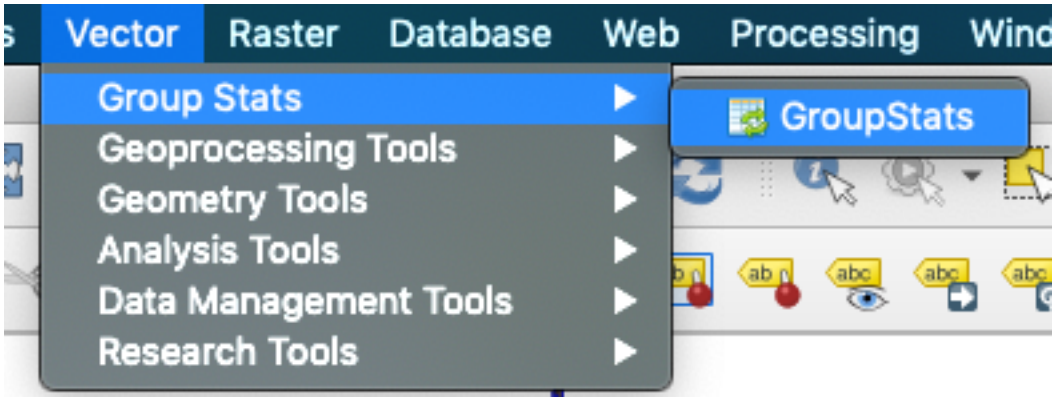
"Code_18" is the CLC18 Land use code (see nomoculture linked from LU Base)
"AreaCode" is the Local Authority Area code used by ONS
Note: "Area_Ha" and "SQKM" area from each of the originally CLC18 polygons, but as some polygons might pan Local Authority areas these are no longer accurate.
5) Add Geometry Attributes (which adds new 'area' and 'perimeter' attribute columns). Specify an output shapefile to save the results to rather than creating a temporary layer as you might want to use again in the future.



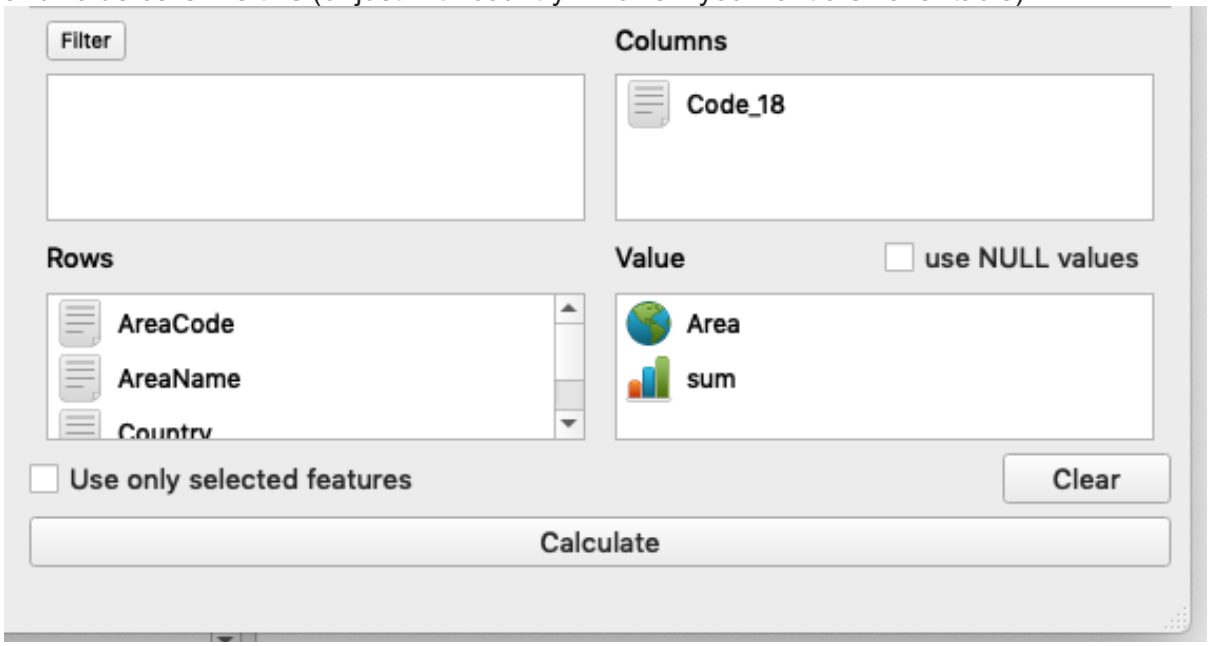
6) Install "groups stats" plug



7) Use Group stats to output table in the format you want.

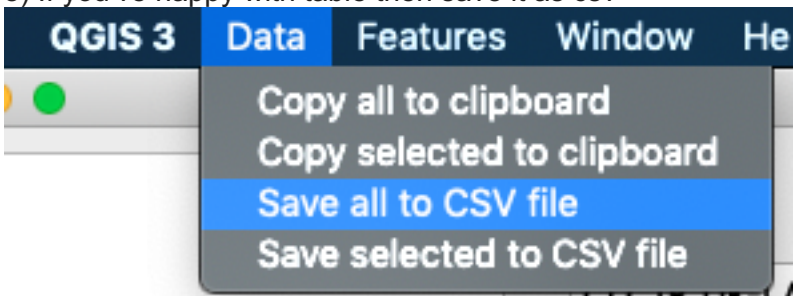


First select the New layer you've created and saved in step 5). Then populate the rows, cols and value cells like this (or just with country in rows if you want a smaller table).



Click calculate, and leave it to think for a few minutes. It will then show you your table on the left hand side.

8) If you've happy with table then save it as csv



You should now have a table with UK totals that match the attached in [8] sheet 'CLC18_UK_LA_Areas'. However it will be missing 3 columns compared to "hectares" sheet (UK doesn't have any 422, 212, 213). It is helpful to create the hectares sheet which:

- Converts m2 into hectares
- adds in blank columns
- Sorts into ascending CLC code order
- Adds Descriptions for each CLC Land use category

Appendix 2: How we have worked

The Land Use Policy Working Group met for the first time in January 2020. Since then it has become a recognised Policy Working Group of the Green Party. It has met mostly weekly and worked to meet the policy process as defined in Standing Orders for the Conduct of Conference (SOCC). Our constitution can be found here [21].

An Enabling Motion [12] was passed at Spring Conference 2021 that provided for the Land Use Policy Working Group to develop a draft land use policy on behalf of the Green Party of England and Wales (the Party). This is an iterative process and much consultation, both with members of the Party and with external organisations has already taken place. We welcome new members and new views to this process and you can contact any of us via our Green Space.

If the policy approach in the Draft Voting Paper is approved by Conference and the Standing Orders Committee deems it appropriate, the Land Use Policy Working Group will proceed to develop a Voting Paper for Spring 2022 Conference.