



**Powys Local Development Plan
Topic Paper
Renewable & Low Carbon Energy**

September 2016



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from Powys REA (2016)**

Executive Summary

The purpose of this topic paper is to aid the examination of the Powys Local Development Plan (LDP) on the topic of 'Renewable & Low Carbon Energy'. Guidance on LDPs: Preparing for Submission published by the Planning Inspectorate (2015 p.7) explains:

*'...topic papers can provide helpful context on key issues. They should elaborate on the LDP's supporting text to explain, as succinctly as possible, **how the evidence has informed the policy and why the proposed approach is sound.**'*

The Topic Paper therefore provides a context within which the LDP Policies relating to renewable and low carbon energy are set. This context is in the form of a summary of the key European, national (UK and Welsh) and local policies all of which have had some bearing on the development of the LDP policies.

It then presents the recommendations, along with their justification, for the detail of Policy RE1 as well as the other considerations that need to be borne in mind when considering the Policy itself.

Chief amongst the Recommendations are that Policy RE1 will be supporting the expectation that Strategic Scale proposals are to be confined to the Strategic Search Areas of which there are two wholly within the County. In addition it will also support an expectation that wind proposals between 5 and 25MW and solar proposals 0.5MW and upwards will be confined to Local Search Areas.

Secondly it presents the renewable energy contributions that the Policy will be supporting and presents the calculations, by way of a justification, that were used to determine those contributions.

The final recommendation is to again support the expectation that local policy on renewable energy to meet these LDP contributions is set in a way that does not duplicate or overlap National Policy.

Introduction

The purpose of this topic paper is to aid the examination of the Powys Local Development Plan (LDP) on the topic of 'Renewable & Low Carbon Energy'. It provides an overview of the current European, national and local renewable and low & zero carbon energy policy landscape within which the LDP policies on RE and Low and Zero Carbon (LZC) Technologies sit. It also importantly provides the context and the evidence behind the LDP policy itself.

Throughout this topic paper, please note the following definitions and acronyms:

e - electricity

t – thermal or heat

h - hours

Installed capacity (size of generator)	Capacity factor (efficiency)	Output (hours) (24hrsx365days = 8760)
1kW e/t	100%	8760 kWh or 8.7 MWh
1MW e/t	100%	8760 MWh or 8.7 GWh
1GW e/t	100%	8760GWh

The Policy Context – EU, National, and Regional

EU and UK Climate Change Commitment (2008)

In 2008, the European Union (EU) agreed to reduce CO₂ emissions by 20% of 1990 levels by 2020. In doing so the EU also committed itself to reducing predicted energy consumption by 20% and increasing the use of renewable fuels by 20% by the same time.

The UK in response agreed to achieve 15% of all energy needs through renewable sources by 2020. This means that by that time at least 30% of the UK's electricity, 12% of our heat and 10% of our transport energy would be derived from renewable fuels.

UK Climate Change Act (2008)

In the same year this Act became the first with legally binding targets that UK governments have to meet. It established five-yearly carbon budgets to ensure that these targets were met. They included a 34% reduction in greenhouse gas emissions by 2020 and at least an 80% reduction in greenhouse house gas emissions by 2050.

The Low Carbon Transition Plan and Renewable Energy Strategy (2009) In 2009 these two documents sought to lay out how the targets will be met. The Transition Plan outlines how the UK will meet the 34% reduction in emissions by 2020. The Strategy commits the UK to meeting the EU's Renewable Energy Directive (2009) as well as a legally binding target of 15% of energy from

renewable sources by 2020 through the increased use of renewable electricity, heat and transport.

UK Renewable Energy Road Map (2011)

This document outlines a plan to accelerate the use of renewable energy and a commitment to drive down the costs of that energy through the use of financial support mechanisms. Importantly all four of the UK administrations, including Wales, signed up to it in July 2011. It also includes an annual report on progress which has revealed that the UK is on course to meet the target of sourcing 15% of all energy from renewable sources by 2017.

Renewables Obligation (RO)

This is the main financial device that supports large scale UK renewable energy generation. The RO places an obligation upon suppliers of electricity to secure a proportion of their electricity from renewable sources. To prove this they are required to buy RO Certificates from the providers of the renewable energy and present them to Ofgem, the independent regulatory authority for the Gas and Electricity Markets in the UK. RO Certificates are issued to renewable energy generators according to the type and cost of technology they employ to generate the electricity. They can be issued to generators using wind energy, hydroelectric schemes, photovoltaics, tidal and wave energy, geothermal and a wide variety of biomass schemes.

The Planning and Energy Act (2008)

The Act complements Planning Policy Wales (PPW see below) and enables LDPs to set reasonable contributions for the generation of energy from local renewable resources and low carbon energy and for energy efficiency. The Act is complemented by the policies contained in Planning Policy Wales (PPW) that cover such issues and provides a legal basis for the implementation of LDP policies against the national framework.

Climate Change Strategy for Wales (2010)

This strategy stresses the need for the wider public sector in Wales to lead by example in considering climate change in all decision-making; delivering increased energy efficiency, and importantly making sure that land use planning promotes and delivers sustainable development and increasing resilience by moving Wales towards a low carbon economy. It includes targets to achieve an annual 3% emission reduction. It also identified a number of key areas which were important to achieving these targets, including maximising energy generation, reducing energy consumption, improving energy efficiency, buildings, and innovation & skills.

Energy Wales: A Low Carbon Transmission (2012)

This document details the importance of making a transition to a low carbon economy for Wales. To achieve this it outlines three key objectives: providing leadership on energy in Wales (including improving the planning and consenting regime to create a 21st Century energy infrastructure), maximising the benefit that

energy can deliver (including for communities), and the need to act now for the long term future.

The Wales Spatial Plan Update: People, Places, Futures (2008)

This document places emphasis on the importance of reducing negative environmental impacts, whilst identifying the significant opportunities that exist within Wales for both wind and tidal sources of energy. In recognising this opportunity it also identified where this generation should occur which in turn informed the Technical Advice Note 8 (see below)

Planning Policy Wales (PPW) Edition 8 (2016)

PPW commits the planning system to optimising renewable and low carbon energy generation, including combined heat and power schemes. It places a responsibility for local planning authorities to be generally supportive of renewable energy projects providing that environmental impacts are minimised or avoided and protected areas are not compromised.

Technical Advice Note (TAN) 8: Renewable Energy (2005)

This created a new planning context for wind energy generation in Wales and saw the creation of seven Strategic Search Areas (SSAs) across Wales where large scale wind farms of over 25Mw in capacity could be accommodated.

It also stresses the need to make sure that all forms of renewable energy and energy efficiency are supported by local planning authorities. However it also recognises that, in doing the above, inappropriate development that would create detrimental impacts upon designated and protected sites that are subject to statutory obligations, the historic environment and local communities should be either avoided or mitigated against.

Ministerial Letter (2011)

John Griffiths AM (Minister for Environment & Sustainable Development) wrote to all LPAs to state the maximum capacities of Welsh renewable energy schemes to be:

1700MW from onshore wind schemes within the SSAs, and
300MW from schemes that are under 25MW, on brownfield, community and locally based schemes.

The letter also spelt out the expected maximum capacities for the SSAs. Two of them (B: 430MW & C:98MW) are wholly within the County of Powys whilst a further one (SSA D:212MW) straddles the border with Ceredigion.

SSA	Maximum Capacity
B: Carno North	430MW
C: Newtown South	98MW
D: Nant-Y-Moch (part of)	212MW (part of)

Technical Advice Note (TAN) 12: Design (2014)

TAN 12 provides advice relating to the need to consider good design at an early stage of a planning application which should always incorporate consideration of how any development can optimise its energy conservation and efficiency.

WG Practice Guidance:

Planning for Renewable and Low Carbon Energy – a Toolkit for Planners (2015); &

Planning Implications of Renewable and Low Carbon Energy (2011).

The WG is committed to making sure that Wales meets the challenge of climate change and these two documents are aimed at enabling LPA's to play their part. The 'Toolkit' describes how LDPs can incorporate and be underpinned by 'robust, spatially based policies'. It enables a match between the desired policy objective and the most suitable evidence base required to support that objective.

The 'Planning Implications' document 'is a tool to support LPA's in dealing with applications for renewable and low carbon developments.' Together, these documents provide advice on how LPA's can carry out their duty to 'facilitate' all forms of renewable energy, energy efficiency and conservation measures.

Both the documents cover a wide range of renewable energy technologies, with the 2015 version of the Toolkit including a section on the assessment of solar PV potential.

Importantly the guidance also clarifies the issue of community involvement and benefits. Community benefit is defined as a "...'goodwill' contribution voluntarily donated by a developer for the benefit of communities affected by development where this will have a long term impact on the environment." Whilst these benefits would normally be via voluntary contributions to community funds or trusts, there is also scope for other, particularly non-financial, benefits that can be secured via the planning process through such mechanisms as Section 106 or the Community Infrastructure Levy.

Ministerial Letter, December 2015

Following on from the publication of the revised Renewable Energy Toolkit (see above), the Minister responsible for Renewable Energy wrote to LPA's requesting that they consider the need for local policies (including spatial representations) in support of local authority scale (Between 5MW and 25MW for onshore wind and between 5MW and 50MW for all other technologies) renewable energy applications. The letter went on to explain the expectation to include within the Powys Renewable Energy Assessment an assessment of the potential for solar developments in the county.

Wind Farm Design Guidance: Designing Wind Farms in Wales (2012)

The document is primarily concerned with Nationally Significant Infrastructure Projects (NSIPs), as well as Planning Appeals and Called-In Planning Applications projects (both >50MW). However the guidance also outlines the

design issues that are considered in a wind farm development planning application.

Building Regulations and Zero Carbon

3.1.45 Changes to the Building Regulations in 2013 and 2016 brought in challenging dwelling [CO₂] emissions rate targets for residential development and for commercial development by 2019. By 2016, new homes will need to achieve a 70% reduction in CO₂ emissions on or near site from energy efficiency and the use of Low and Zero Carbon [LZC] energy options. For large sites, district heating [DH] from a low carbon source is likely to be one of the most cost-effective ways of achieving this.

3.1.46 Developers will then have to deal with their residual carbon emissions through the use of Allowable Solutions [AS]. One AS proposed would allow credit for carbon emissions where heat is exported from the site to nearby existing buildings via a District Heat Network. The power to make Building Regulations for buildings in Wales was transferred to the Welsh Ministers on 31st December, 2011.

Wales Planning Act 2015

The act aimed to address 5 main objectives:

1. A modernised framework for the delivery of planning services, which includes the ability to make certain planning applications direct to the Welsh Ministers. This will include a new category of application: Developments of National Significance (DNS)(similar to the Nationally Significant Infrastructure Projects). The criteria for DNS are referred to below.
2. Strengthening the Plan-led approach via the introduction of a National Development Framework for land use (to replace the Wales Spatial Plan) and Strategic Development Plans.
3. Improved resilience via powers to enable LPA's to work more closely together or even merge.
4. Improvements to the Development Management process including the introduction of a statutory pre-application procedure for certain applications.
5. Changes to the enforcement and appeals systems.

The Developments of National Significance (DNS) (Specified Criteria and Prescribed Secondary Consents) (Amendment) (Wales) Regulations 2016

This provides the criteria for DNS mentioned above, and amends them to remove confusion arising from recent changes in English regulations (see below). The criteria specifies that in Wales all renewable energy applications between 10MW and 50MW are considered to be DNS which will therefore be determined by the Assembly Minister.

However the Onshore Wind Generating Stations (Exemption) (England and Wales) Order 2016 and the Infrastructure Planning (Onshore Wind Generating

Stations) Order 2016 came into force in March 2016. This specifies that all applications for onshore wind generation up to the size of 350MW should be determined locally by LPA.

The criteria for DNS was therefore amended to ensure that all wind turbine applications with a generating capacity of more than 50MW will be considered to be DNS and therefore determined by the Minister.

All renewable energy applications below 10MW will continue to be determined locally.

Well-being of Future Generations Act 2015

The Well-being of Future Generations (Wales) Act aims to improve the social, economic, environmental and cultural well-being of Wales by making the public bodies listed in the Act think more about the long-term, work better with people and communities and each other, look to prevent problems and take a more joined-up approach.

The Act puts in place seven Well-being Goals:

- A globally responsible Wales
- A prosperous Wales
- A resilient Wales
- A healthier Wales
- A more equal Wales
- A Wales of cohesive communities
- A Wales of vibrant culture and thriving Welsh language

The Act places a well-being duty that public bodies in Wales will be expected, by law, to carry out. The well-being duty states: Each public body must carry out sustainable development. The action a public body takes in carrying out sustainable development must include: a. setting and publishing “well-being objectives” that are designed to maximise its contribution to achieving each of the well-being goals, and b. taking all reasonable steps (in exercising its functions) to meet those objectives.

The Local Policy Context

The Unitary Development Plan (2010)

The key policies within the UDP that relates to Renewable Energy and Energy Efficiency are found within the Strategic Part One section. ‘UDP SP12 Energy Conservation and Generation’ and Part Two (Policies E1 to E7).

SP12 is concerned with supporting both issues:

A. ALL DEVELOPMENTS SHALL DEMONSTRATE THAT ENERGY CONSERVATION AND EFFICIENCY MEASURES HAVE BEEN CONSIDERED AND, WHERE PRACTICABLE, INCORPORATED.

B. PROPOSALS FOR ENERGY GENERATION FROM RENEWABLE SOURCES WILL BE APPROVED PROVIDING THAT THEY MEET THE LANDSCAPE, ENVIRONMENTAL, AMENITY AND OTHER REQUIREMENTS SET OUT IN THIS PLAN.

Both parts A & B take a positive position towards encouraging energy efficiency and all sources of renewable generation and places a presumption in favour of approval for generation schemes of energy providing they meet the requirements concerning Landscape, Environment and Amenity (eg ENV1 – ENV19), as well as other considerations wherever necessary, that are detailed elsewhere in the plan.

In addition to SP12 support for energy conservation measures is detailed in Designing Energy Efficient Development (DEED) IDCG (2008) which accompanied the UDP.

In Part Two of the UDP Section 12 deals with energy and contains policies E1 to E7. Policies E1 and E2 anticipate a potential increase in the use of Thermal Power and from combustion sources. E1 deals with larger scale units (over 5MW) burning either fossil or renewable fuels (probably wood). Policy E2 focusses on smaller scale (below 5MW) thermal combustion sources of energy, such as that found in Combined Heat and Power (CHP) schemes as well as landfill gas, anaerobic digestion and pyrolysis of waste etc.

Policies E3, E4 and E5 are concerned with Windpower and details the criteria that will be considered before approval would be granted, the removal of decommissioned wind turbines and the planning obligations related to Off-site works associated with wind turbines.

Policies E6 and E7 relate to Hydro and Solar sources of energy production respectively and again detail the criteria against which applications would be assessed before approval was given.

Finally the issue of Energy transmission is dealt with at the end of this section and within UDP Policy DC12. This includes power lines, heat mains and hydro related pipework such as penstocks etc.

Powys County Council Renewable Energy Assessment (2012) and Update (2016)

In 2012 the Council commissioned a 'Renewable Energy Assessment' (REA) to inform the LDP and identify the potential for renewable energy in the county. This in turn then informed the selection of the policy objectives which were carried through to the LDP. See 'Key Issues' section below for more information.

The REA followed the advice that was initially set out in the 'Planning for Renewable and Low Carbon Energy - a Toolkit for Planners'. It identified the potential for energy generation from wind, hydro, waste, biomass and Building Integrated Renewables (BIR). It also included an analysis of opportunities for Combined Heat and Power (CHP) within the county in the form of an Energy Opportunity Assessment.

In summary the 2012 REA established the existing energy capacity (in 2012), the predicted energy consumption (by 2026), and the potential capacity (in 2026). How this information has informed the development of the LDP Renewable Energy Policy is treated below (see Key Issues section).

Since the update of the Welsh Government's 'Toolkit for Planners' in 2015 the 2012 REA has been updated. The 2016 update reviewed the original figures and also included the spatial identification of Local Search Areas for Wind Schemes between 0 and 25MW capacity, and all Solar Photovoltaics over 0.5MW capacity.

The table below summarises the main findings of the REA Update 2016:

Table 1: Summary of the 2016 REA Update

		Electricity		Thermal	Total
		Small Scale	Large Scale		
A	By 2012	1.8MW	212.3MW	1.8MW*	A
B	2012 Combined	214.1MW		1.8MW*	215.9MW*
C	By 2016 (Existing)	10.1MW	326.6MW	74.5MW	C
D	By 2016 Combined (Existing)	336.7MW		74.5MW	411.2MW
E	2012 to 2016 (C minus A)	8.3MW	114.3MW	72.7MW	E
F	2012 to 2016 Combined (D minus B)	122.6MW		72.7MW	195.3MW
G	Predicted Consumption by 2026	606GWh**		1,463GWh**	
H	Maximum Potential Capacity	2,441MW		247MW	2,688MW
I	Additional Contribution between 2016 and 2026	599MW		29.5MW	628.5MW
J	Existing and Additional Contribution, (for Plan Period 2011 to 2026) (F + I)	721MW		102.2MW	823.8MW

K	Total by end of Plan Period (B+F+I)	936MW	104MW	1040MW
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* This figure likely to be an under-representation

** Note the different unit of measurement

The Powys Conjoined Windfarm Public Inquiry (2013 to 2015)

As a result of the Council considering and objecting to 6 separate planning applications (5 for large scale windfarms associated within or adjoining the SSA's, plus a 6th application for improvements to transmission infrastructure) public inquiries were triggered. DECC decided that the best way to consider all six schemes was to hold a Conjoined Public Inquiry (CPI).

Powys' Initial Position

Powys County Council initially opposed the 6 applications and for the following primary reasons: Landscape and visual impacts (Llanbadarn Ffynydd, Llaithddu, Llandinam (Repowering), Carnedd Wen), failure to adequately mitigate against the harm, particularly in respect of Highways (Llanbrynmair), and poor route selection (Llandinam to Welshpool Overhead Line). Whilst the Council's initial position at this Inquiry was to oppose the proposals this situation was later nuanced during the course of the CPI and the further evolution of the proposals. For a full account of the Council's position and the considerations behind it please refer to Annex 9 (page 854 to 870) of the Inspectors Report which can be found at:

<https://itportal.decc.gov.uk/EIP/pages/projects/InspectorsReportEnglish.pdf> .

The Council's position at the Inquiry will not prejudice any future applications which will be dealt with on their merits according to the criteria laid out in adopted Policy.

The Inquiry and its Outcomes

The Inquiry opened in June 2013 and concluded in May 2014 with the Inspector submitting their Report to the Secretary of State in December 2014. The six schemes considered were:

Table 2: Summary of CPI Wind Farm Proposals with Provisional Outcomes

Scheme	SSA	Approximate Capacity (MW)	No.s of Turbines	Outcome of Inquiry (as at March 2016)
Llanbadarn Fynydd Wind Farm	C	59.5	17	Refused
Llanbrynmair Wind Farm	B	90	30	Refused but decision since quashed
Fferm Y Wynt Llaithddu Wind Farm	C	62.1	27	Refused

Llandinam (Repower) Wind Farm	C	102	34	Consented
Carnedd Wen Wind Farm	B	130 - 150	50	Refused but decision since quashed
Llandinam to Welshpool 132kV Overhead Line	N/A	N/A	N/A	Refused

Llanbadarn Fynydd Wind Farm - Refused

The Inspector recommended refusal and the Secretary of State accepted the Inspector's view that the scale of the visual effect impacts, the impacts on the residential amenity and the detraction from the historic character of the landscape in which the project would sit mean that granting consent would conflict the relevant provisions of Energy National Policy Statements EN-1 and EN-3. The Inspector also felt, and the Secretary of State agreed, that the proposal would not be consistent with Planning Policy Wales (Edition 7), TAN 8 or Powys County Council's UDP.

Llanbrynmair Wind Farm – Refused (but Decision since quashed)

The Inspector recommended that, subject to relevant conditions being applied, planning permission should, in part, be granted. However the Secretary of State did not agree with the Inspector's recommendation and decided to refuse consent on the following grounds:

The Secretary of State disagreed with the Inspector's conclusion that the adverse visual and landscape effects would be outweighed by the benefits of the development, particularly in respect of a number of nearby residential properties and the views from the south eastern section of the Snowdonia National Park. The Secretary of State was also not persuaded that adequate mitigation measures existed. As far as transport was concerned, the Inspector also recommended consent on the understanding that shared access be made available via the Carnedd Wen proposal. However as the Secretary of State is also refusing this application (see below) then the Llanbrynmair proposal should also be refused.

Since this announcement was made however the decision has since been quashed (see below).

Fferm Y Wynt Llaithddu Wind Farm – Refused

The Secretary of State noted the Inspector's view that all the impacts on hydrology, hydrogeology, biodiversity, cultural heritage and the transport network would be acceptable, subject to the imposition of relevant conditions. The Secretary of State also agreed with the Inspector's reasoning and conclusions on the cumulative impacts of all the different applications and potential scenarios of consent. However the Inspector's report recommended refusal of this application and the Secretary of State accepted the Inspector's view that the Southern group

of turbines (involving 15 turbines with a hub height of 64M) in this application would have a harmful impact on landscape features and visual amenity, and as such was in conflict with National Policy Statements EN-1 and EN-3 which set out requirements to minimise or mitigate harm on the landscape and visual amenity.

Llandinam (Repower) Wind Farm - Consented

This application sought permission to decommission the existing wind farm at Penrhyddlan & Llidiartywaun, nr Llandinam and construct and operate a new wind farm in its place. This new wind farm would consist of 34 turbines (down from 42) that would generate a maximum of 102MW. Whilst it is located outside the approximate boundaries of SSA C both the Inspector and the Secretary of State agreed that it should be treated as being within the SSA on account of its proximity to it.

The Inspector recommended that Section 36 consent for planning permission be granted and the Secretary of State accepted the full content of the Inspector's Report including its recommendation and the reasons for it. These reasons included an improvement in the visual impact of the existing Wind Farm and other impacts that could be mitigated against.

Carnedd Wen Wind Farm – Refused (but Decision since quashed)

This application related to a Wind Farm of 50 turbines with a generating capacity of between 130 and 150MW. The Inspector recommended that consent be given, in part, subject to conditions. However the Secretary of State disagreed with this recommendation and hence refused consent.

In spite of the benefits that the Secretary of State recognised, the reasons for refusal included the likely harm to the landscape and visual qualities of the Nant yr Eira Valley and the substantial visual impact affecting a number of residential properties in the Valley as well as upon views from the south eastern edge of the Snowdonia National Park, and that these impacts outweighed any potential benefits the development might bring.

Since this announcement was made however the decision has since been quashed (see below).

Llandinam 132kV Electricity Line – Refused

This application related to the installation of 35Km of new Overhead Line to take power generated by the repowered Llandinam Wind Farm (see above) to the Welshpool Substation.

The Inspector recommended that if the Llandinam Repowering proposal was to be granted consent then a section 37 consent and deemed planning permission for the overhead line should be granted. However if consents were granted that would not take the installed capacity for SSA C beyond 160MW the Inspector recommended that further Strategic Environmental Impacts should be sought in

order to decide whether consent should be conditional upon the line being upgraded to a higher capacity.

The Secretary of State however did not agree with the Inspector's recommendations partly because they had not been convinced that the route chosen was the only or best way to meet the need identified as the Inspector had considered other routes in the Report. The Secretary of State also agreed with the Inspector that there was a clear conflict between the proposed development and existing UK and Welsh Government, and local UDP planning policy. The Secretary of State also accepts that the conditions proposed by the Inspector would mitigate many of the potential impacts if it were consented. However where visual and landscape impacts, and the potential harm to Scheduled Ancient Monuments were concerned the Secretary of State took a different view to that of the Inspector and refused to consent the application.

Position as at September 2016

Following an appeal from the two applicants the High Court has ruled that the Secretary of State's decision to refuse consent for the Llanbrynmair and Carnedd Wen applications should be quashed. This means that the Secretary of State will need to look again at the decision to go against the Inspector's recommendations for these two applications. Whilst the re-determination process has commenced, by September 2016 no decision has, as yet, been reached.

The Key Issues

Within the LDP (Section 2.4) are listed a number of county-wide Key Issues that relate to renewable energy and low carbon development. Key Issue 4 related to the need to support moves towards cheaper and more resilient and sustainable forms of energy. Key Issue 11 touches on the importance of the county's resource for renewable energy generation. Key Issue 13 stresses the need to protect the county's important landscapes from visual impact. Key Issue 28 stresses the importance of energy efficiency for tackling fuel-poverty and Key Issue 43 & 44 highlight the need to reduce the energy requirements for development and the importance of supporting the utilisation of the county's renewable energy resource wherever the cumulative effects are acceptable. Both Key Issue 11 and 44 are underlined by the findings of the Powys Renewable Energy Assessment (2012) (see above).

As a result, the key LDP (2015) objectives for renewable and low carbon energy are:

LDP Objective 4 – Climate Change and Flooding: 'to support the transition to a low carbon...Powys...'

LDP Objective 5 – Energy and Water: ‘to support the conservation of energy and water and to generate energy from appropriately located renewable resources where acceptable...[in order to]... deliver the county’s contribution to the national targets.

LDP Objective 6 – Vibrant economy: ‘to support a diverse, robust and vibrant economy for Powys...’

LDP Objective 10 – Important Assets: ‘to support the operation and development of regionally and nationally important assets.’

LDP Objective 11 – Natural Heritage: ‘to conserve and protect Powys’ land, air and water resources...’

LDP Objective 13 – The Landscape and the Historic Environment: ... to protect, preserve and/ or enhance the distinctive landscapes of Powys and adjoining areas...’ And ‘... the distinctive historic environment, heritage and cultural assets of Powys.. [where they are] ..not statutorily protected... and ... ensure that development respects local distinctiveness.

LDP Objective 16 – Community well-being: ‘to promote development that supports community wellbeing and cohesion...’

Review of the UDP Policies

Para 5.2.2.2 of the Local Development Plan Manual (2016) states that “Existing planning policies should also be reviewed...” The Planning Policy that is currently in force in Powys is the UDP which includes policies relating to renewable energy and energy efficiency (see Local Policy context above).

A review of these policies quickly reveals that the policy landscape, language and aspirations surrounding the subject have changed considerably since the UDP was adopted. Policy SP12 includes ‘energy efficiency’ which, as a phrase has largely been superseded by more ambitious expectations and terminology that is reflected in the policy landscape. Terms such as low and zero carbon (LZC) relate to energy efficiency as well as other concepts such as passive building design, etc.

Additionally the Policies E1 to E7 are also in need of updating to reflect this continually developing policy situation and realities of the renewable energy sector as a whole. For instance the anticipated increase in the use of thermal power has not, so far, materialised. Whereas interest in wind has continued to dominate the proposals submitted over the last few years. It may also be the case that interest in Solar PV may well increase over the lifetime of the LDP, as experience elsewhere in the UK recently demonstrates.

For these reasons the UDP policies all need revising to ensure that the policies appearing in the LDP reflect the expectations of this more nuanced policy landscape and the current capabilities of the sector.

Allied to this consideration is the fact that in any technological arena new developments will always continue to increase and improve capabilities and performance, and may even introduce hitherto unknown technologies during the lifetime of the Plan.

Consequently, in replacing the UDP policies, it is important to make sure that the new LDP policies are not only up to date but continue to be positively worded and supportive of the need for renewable and low carbon solutions, but also, as far as can be achieved, versatile enough to be future-proof and 'fit-for-purpose' in the face of new technological developments that may appear as the efforts to tackle the causes of climate change continue to gather pace.

Recommendations

This topic paper presents three recommendations in respect of the LDP Policy on renewable and low carbon energy:

- A. To make use of Local Search Areas (LSA) for the siting of wind energy generation schemes up to 25MW and solar electricity generation over 0.5MW and the Strategic Search Areas (SSA) in Technical Advice Note 8: Renewable Energy (TAN8) for the siting of all onshore wind schemes over 25MW.
- B. To identify the contribution that the County can make to meeting the national targets for the generation of renewable energy and heat as stated in the Low Carbon Transition Plan and Renewable Energy Strategy of 2009.
- C. To set local policy on renewable energy to deliver the County's contribution without duplicating or overlapping with National Policy.

A. To make use of Local Search Areas (LSA) for the siting of wind energy generation schemes up to 25MW and solar electricity generation over 0.5MW and the Strategic Search Areas (SSA) in Technical Advice Note 8: Renewable Energy (TAN8) for the siting of all onshore wind schemes over 25MW.

The Renewable Energy Toolkit (2015) emphasises the need for LPAs to make sure their LDPs include spatially based policies. It also included a new section

explaining how LPAs can assess the potential for solar farm developments in their areas. The Ministerial Letter of December 2015 underlined both these points by drawing the attention of LPAs to the need to allocate local areas of search for local-authority scale renewable energy schemes, as well as the need for this work to include solar development potential.

As a consequence the updating of the REA (2016) also included the identification of Local Search Areas (LSA) for both wind and solar electricity generation schemes.

The LSAs for wind are intended to accommodate any wind energy generation scheme up to 25MW in size. Schemes that are over that capacity are expected to be accommodated within the Strategic Search Areas (see below).

The LSAs for Solar are intended to accommodate any solar photovoltaic generation scheme over the threshold of 0.5MW.

The methodology for identifying both kinds of LSA is detailed in the REA (2016). Neither the wind or solar LSAs provide any guarantee that applications for schemes will be approved within them, nor do they preclude applications from elsewhere in the county from being considered. Neither kind of LSA are safeguarded (see discussion below). As such they represent the optimum areas of the county where it is thought such schemes would be most viable (in terms of the stated environmental constraints and availability of resource, etc.)

The LSAs are included in detail within the REA (2016) as well as, in less detail, on the LDP's Proposals Maps and in the Appendices of this Topic Paper. For reference they are labelled as follows:

Wind LSA	Solar LSA
W1 East of Lake Vyrnwy	S1 Carno
W2 South West of SSA C	S2 South of Llanidloes
W3 Radnor Forest West	S3 Llanbister
W4 West of Hundred House	S4 Nantmel
W5 North of Beulah	S5 East of Builth
W6 East of Aberedw	S6 North of Brecon
W7 South of Builth Wells	S7 Ystradgynlais

Welsh Government's (WG) Planning Policy Wales (PPW) (2016 p181) explains that the most appropriate scale at which to identify areas for large scale onshore wind energy development is at an all-Wales level through the identification of SSA.

To support this TAN8 explains:

'The SSAs for onshore wind as identified on Maps 1-8 [of the TAN]...must be referred to in local development plans and, if refined, incorporated into local development plan proposals maps...'

With regard to refinement of the SSA in Powys, in 2006 and 2008 PCC commissioned two refinement exercises regarding the TAN8 SSA B & C. Neither resulted in formal refinement of the SSA, although each resulted in consultation being undertaken on a draft Interim Development Control Guidance Note (IDCG). The 2008 IDCG was agreed for development control use concurrent with the consultation (PCC, 2008, p6). The results of the consultation were never formally considered by the County Council and the IDCG was not confirmed as Supplementary Planning Guidance (SPG) on adoption of the Unitary Development Plan in 2010 (PCC, 2010, pp5-6). Furthermore, given the more detailed assessments before the Mid Wales conjoined wind farms public inquiry, Counsel for PCC (2014, p40) concluded that the work (i.e. the refinement exercises) must be 'approached with caution' to the extent that 'it should be given very little weight'.

Subsequently the Mid Wales conjoined wind farms public inquiry has provided a further opportunity to consider a comprehensive assessment of the combined landscape and visual effects of wind turbine proposals and also of the strategic and detailed cumulative assessment of large scale indirect impacts on the setting and significance of heritage assets in and around the SSA.

WG TAN8 (2005 p7) explains that local planning authorities may wish to establish suitable criteria for separation distances between schemes and from the perimeter of existing wind power schemes or the SSAs. The LDP is not, however, prescriptive on separation distances, leaving them to be determined on a case by case basis.

There is opportunity to prepare SPG on renewable energy once the LDP has been adopted.

B. To identify the contribution that the County can make to meeting the national targets for the generation of renewable energy and heat as stated in the UK Low Carbon Transition Plan and Renewable Energy Strategy of 2009

LDP Objective 5 cites the need for the county to make a contribution to the national renewable energy generation targets and the REA Update (2016) identifies that this contribution could come from an additional 973GWh of electricity generation plus a further 75GWh from renewable heat.

PCC's Regeneration Strategy (2011, pp51-56) includes regeneration priority 5 – harnessing Powys' natural assets, which suggests Powys could become the

'home' of renewables technology, innovation and development in Wales. This is a positive message backing the WG's proactive message.

The requirement to identify the renewable energy contribution comes from PPW (2016, para 12.8.9, p180) which explains that:

'[Local Planning Authorities should consider] the contribution that their area can make towards developing and facilitating renewable and low carbon energy and ensuring that development plan policies enable this contribution to be delivered.'

The UK Renewable Energy Roadmap Update 2013 shows the UK is making "very good progress" against the overall target of 15% renewable energy consumption by 2020. It also explains that renewable electricity generation in Wales increased from 2.3 to 2.4TWh in the year to June 2013, an increase of 1%.

The UK HM Government (2009, p8) lead scenario to meet the overall renewable energy consumption target of 15% by 2020 is to generate 30% of electricity from renewables, to generate 12% of heat from renewables and 10% of transport energy from renewables.

The contributions that Powys can make towards the national targets in the LDP are derived from the evidence in PCC's Powys Renewable and Low Carbon Energy Assessment (REA). The need to undertake this study comes from WG PPW (2016, pp182-183):

12.8.18 Local planning authorities should facilitate local authority-wide scale renewable energy in development plans by undertaking an assessment of the opportunities and potential for renewable energy in the area.

12.9.2 Local planning authorities should guide appropriate renewable and low carbon energy development by undertaking an assessment of the potential of all renewable energy resources and renewable and low carbon energy opportunities within their area and include appropriate policies in development plans.

12.9.5 Policies for strategic renewable energy development in areas outside SSAs, if appropriate, should be included in development plans informed by local authority renewable energy assessments.

Table 8 in PCC's REA (2016, p15) predicts the total energy consumption for the Local Planning Authority (LPA) area in 2026 (the end of the plan period) as 606GWh of electricity and 1,463GWh of heat.

Tables 9 and 10 in PCC's REA (2016, p17) show the existing capacity for generating renewable electricity is 524GWh. This equates to approx. 86% of the total predicted consumption in 2020, in excess of the UK HM Government (2009, p8) lead scenario of 30% to meet the 2020 target.

Tables 9 and 10 in PCC's REA (2016, p17) show the existing capacity for generating renewable heat is 28GWh. This equates to less than 2% of the total predicted consumption in 2020, well below of UK HM Government (2009, p8) lead scenario of 12% to meet the 2020 target.

The Local Contribution

It is clear that the LPA area is contributing significantly towards the generation of renewable electricity, far less so towards the generation of renewable heat. Nevertheless PPW (2016, p183) explains that LPA should plan positively for all forms of renewable and low energy development using up to date and appropriate evidence. It is in this context that the REA from 2012 was updated in order to ensure that the LDP RE policy was based on up to date evidence.

The REA (2016, p4) calculated that the total existing renewable energy capacity in Powys amounted to 336.7MW of electrical power, and 74.5MW of thermal power

The predicted energy consumption for the end of the plan period in 2026 was calculated to be 606GWh of electricity, and 1,463GWh of heat (REA 2016, p3).

The REA (2016, p4) undertook an area wide resource assessment to provide an indication of the total potential installed capacity for different technologies that could be supported by the available resource. The maximum potential (ie the absolute maximum that the County could generate if there were no constraints and without any cumulative concerns etc.) renewable electrical and thermal installed capacity across Powys in 2026 was calculated as circa 2,441MW for electricity, and circa 247MW for thermal energy.

How these figures translate themselves into the contribution is outlined below.

The Renewable Electricity Contribution

Table 29 of the REA (2016 p40), which is reproduced in Appendix 2, details how the different renewable electricity technologies could contribute towards the maximum potential installed capacity. For each technology an appropriate percentage of the total potential was selected. These percentages were based on a variety of factors depending upon the technology. These included previous roll out rates, presence or absence of incentives, ease of deployment, costs, etc.

as well as the likely scale of impact on their surroundings. As such the percentages represent what is thought to be appropriate maximum contributions from each technology. Based on these percentages Table 29 calculates what each technology could contribute in terms of GWh.

Whilst Table 29 of the REA presents some example percentages, it is felt that the percentage for Solar PV in particular is too high in this table. In light of the difficulties currently being experienced across the county with respect to the grid capacity it is proposed that a 25% contribution, instead of the suggested 50%, for solar is considered to be more achievable. This would reduce the contribution made by solar from 540GWh listed in Table 29 down to 270Gwh.

The table below translates these (modified) amounts of GWh into an indicative amount of MW that would be needed on the ground, across the county, in order to meet that percentage and make the required contribution.

Table 3: Renewable Electricity Technologies. MW Required to Deliver Contribution.

Technology	GWh	a GWhx1000= MWh	b 24hrsx 365days =	c a divided by b =	d Capacity Factor	c divided by d = MW
Biomass	18	18,000	8760	2.05	0.9	2.3
Energy from Waste	3	3,000	8760	0.34	0.9	0.4
Hydropower	14	14,000	8760	1.60	0.37	4.3
Landfill Gas	0	-	8760	-	0.6	-
Wind Power	665	665,000	8760	75.91	0.27	281.2
Solar PV	270	270,000	8760	30.82	0.1	308.2
Other	0	-	8760	-	0.45	-
BIR	3	3,000	8760	0.34	0.1	3.4
Total	973GWh	973,000MWh				599MW

From this it can be seen that in order to deliver 973GWh of renewable electrical energy by 2026 an additional, and indicative, 599MW will need to be installed across the county. It will be seen from above that the bulk of this is anticipated to come from Solar PV installations, with wind contributing less than the amount that is currently installed.

Table 29 in the REA (2016) also presents this figure as a percentage of the projected total electrical energy demand for the county by 2026. However with the reduced percentage for the solar contribution taken into account the indicative 599MW of renewable electrical energy generation would, if deployed

by the end of the Plan period, mean the county would be contributing 106% of the 606GWh demand that is projected. This would see the county becoming a net exporter of renewable electricity.

The Renewable Heat Contribution

Table 30 of the REA (2016 p41), which is reproduced here in Appendix 3, details how the different renewable electricity technologies could contribute towards the maximum potential installed capacity. For each technology a likely percentage of the total potential was selected. These percentages were based on a variety of factors depending upon the technology. These included previous roll out rates, presence or absence of incentives, ease of deployment, costs, etc. as well as the likely scale of impact on their surroundings. As such the percentages represent what is thought to be appropriate maximum contributions from each technology

Based on these percentages Table 30 calculated what each technology could contribute in terms of GWh. The tables below translate these amounts of GWh into an indicative amount of MW that would be needed on the ground across the county in order to meet that percentage and make the required contribution.

Table 4: Renewable Thermal Technologies. MW Required to Deliver Contribution.

		a	b	c	d	
Technology	GWh	GWhx1000 = MWh	24hrs x 365 days =	a divided by b =	Capacity Factor	c divided by d = MW
Biomass	34	34,000	8760	3.88	0.5	7.8
Energy from Waste	5	5,000	8760	0.57	0.5	1.1
BIR	36	36,000	8760	4.10	0.2	20.5
Total	75GWh	75,000MWh				29.5MW

From this it can be seen that in order to deliver 75GWh of renewable thermal energy by 2026 an additional, and indicative, 29.5MW will need to be installed across the county. It will be seen from above that over two thirds of this is anticipated to come from Building Integrated Renewables (BIR).

Table 30 in the REA (2016) also presents this figure as a percentage of the projected total thermal energy demand for the county by 2026. If an indicative 29.5MW of renewable thermal energy generation is deployed by then, the county would be contributing just 5% of the 1,463GWh demand that is projected.

It is important that the LDP balances a positive approach towards renewable energy required by WG PPW (2016, p180) with minimising landscape and visual

impact from renewable energy developments elsewhere in the LPA area. This is a key component of LDP Policy RE1.

C. To set local policy on renewable energy to deliver the County’s contribution without duplicating or overlapping with National Policy

WG PPW (2016, p20) explains that national planning policies should not be repeated in LDPs. Instead, LDPs should explain how national planning policies apply to the local area. Guidance on LDPs: Preparing for Submission published by the Planning Inspectorate (2015 p.3) explains the LDP should be a concise, focussed document which conveys essential messages in a clear and engaging way. It should not tell the story of how the plan was prepared, nor include a lengthy recitation of the legislative background. These principles underpin the policy approach in the LDP.

WG PPW (2016, p182) describes the four scales of renewable and low carbon energy development. These are repeated in the table below as they underpin the scope of the planning policy approach to renewable energy development in Wales.

Table 2. PPW scales of renewable energy development.

Scale of development	Threshold (electricity and heat)
Strategic	Over 25MW for onshore wind and over 50MW for all other technologies
Local Authority-wide	Between 5MW and 25MW for onshore wind and between 5MW and 50MW for all other technologies
Sub Local Authority	Between 50kW and 5MW
Micro	Below 50kW

WG PPW (2016, p184) explains that development plans should encourage Sub Local Authority scale schemes and clearly set out the local criteria against which such proposals will be evaluated.

Alongside the expectation to include Local Search Areas within the LDP that emerged in the Renewable Energy Toolkit (2016), the ‘Developments of National Significance (DNS)’ regulations (2016) provided the criteria mentioned in the Wales Planning Act (2015) against which DNS proposals would be determined.

Taken together all of these policy developments have clearly changed the ‘policy landscape’ within which the LDP operates. The tables below summarise, for both

wind and solar developments, how the scales mentioned above relate to the new location designations and who they will be determined by, in light of these changes.

Table 5: Summary of Wind Development Scales, Locations & Determination

Wind	0	50KW	5MW	10MW	25MW+
Scale:					
Micro					
Sub Local Authority					
Local Authority Wide					
Strategic					...
Location:					
Applications considered across County					
Applications considered in LSAs					
Applications considered in SSAs					...
Determined by:					
LDP Policy					
Welsh Government					...

Table 6: Summary of Solar Development Scales, Locations & Determination

Solar	0	50KW	0.5MW	5MW	10MW	25MW
Scale:						
Micro						
Sub Local Authority						
Local Authority Wide						
Strategic						...
Location:						
Applications considered across County						
Applications considered in LSAs						...
Applications considered in SSAs*						...
Determined by:						

LDP Policy						
Welsh Government						...

Strategic and Local Authority Wide Scales

The Treatment of the Search Areas – to Safeguard or Not?

Strategic Search Areas

With regard to the Strategic Search Areas, TAN8 (para 2.10) states that LPAs 'should take an active approach to developing local policy for SSAs in order to secure the best outcomes'. It goes on to say that some of the local issues that could be addressed in this way include 'safeguarding wind farm sites', and that 'LPAs should be aware that other developments could sterilise land for wind power proposals' (p7). There seems to be some ambiguity within this wording, as it uses the word 'sites' as opposed to (search) 'areas'. 'Sites' could mean locations with extant Planning Permission for wind farm developments, as well as existing and operating installations, however this latter interpretation would provide its own safeguarding as a form of existing development. There is also the question surrounding the 'other developments'. Given that the SSAs are in open countryside, away from existing development, and where new development is strictly limited already it is felt that the most likely form of development that could 'sterilise' the SSA would be proposals for other renewable energy technologies or for wind schemes that possess a smaller capacity than the 25MW threshold.

Given that Powys has a large amount of its land area contained within three SSAs (B (Carno North), C (Newtown South) and a part of D (Nant-y-Moch)) it is unrealistic to provide safeguarding through a blanket ban on all development within those areas. A more pragmatic approach would be to place a presumption against any development that would constrain the primary purpose of the SSAs, which is to accommodate Strategic scale wind farm schemes of 25MW and over. This is explained in more detail within the Renewable Energy SPG.

It is noted also that the presence of SSA's does not preclude the consideration of applications for proposals of 25MW or above from elsewhere in the county, beyond the boundaries of the SSAs, and nor do they guarantee the permitting of applications within them.

Local Search Areas

The need to identify local areas of search is detailed in the Renewable Energy Toolkit (2015) and reiterated in the Ministerial Letter of December 2015. The process of identifying them is similar to that of the SSAs and is detailed in the Renewable Energy Toolkit (2015).

The process of identifying LSAs resulted in a comparatively smaller area of land being designated for wind than for solar. Secondly, given the Capacity Factors stated in the Renewable Energy Toolkit, a MW of wind energy is likely to be more

efficient than a MW of solar energy. As a result the REA (2016) recommended that the Wind LSAs should be safeguarded over those for solar. However further consideration suggested treating both the wind and solar LSAs on an equal footing.

Chief amongst these considerations lies the fact that, for the LSAs (as with the SSA's) not all the land within them is suitable for renewable energy deployment. This creates a problem if wind were to be given primacy over solar wherever the two LSAs overlap. For example, if wind were to be given primacy over solar, a refusal for a wind development application would effectively render that land redundant for anything else and in so doing limit the likelihood of achieving the contribution from solar PV.

Yet arguments for some form of safeguarding remain persuasive. For instance, the SSAs contain land that is particularly suitable for large, Strategic scale, proposals, and safeguarding would ensure that this land is not lost to smaller scale proposals. Also, with a smaller area of land suitable for wind proposals up to 25MW, which are more efficient than solar technology, there is a need to provide some sort of priority for this technology, over and above the more widely available land for solar proposals which are ultimately less obtrusive in the landscape, and therefore may well be easier to provide consent for.

An Alternative to Safeguarding - the use of an Energy Hierarchy?

Another approach, and of perhaps more use than safeguarding, is the idea of prioritising within the Search Areas. In this instance some form of energy hierarchy could perform the same role as safeguarding, but without the risk of leaving suitable land redundant.

For example, in the instances where land is covered by only one kind of search area, the technology associated with that search area would have a presumption in favour of development over and above the technologies associated with other search areas. So within a solar LSA any application for other technologies, of any size, would have a presumption against permission if it constrained the primary role of the solar LSA. Vice versa would apply for either of the wind search areas, to avoid a solar proposal acting to 'sterilise' that land for future wind development.

In the instances where wind and solar LSAs overlap with each other then there would be a presumption in favour of permitting wind proposals at the expense of solar. This is justified by the greater efficiency of wind and the wider availability of land for solar developments.

Finally, in the instances where Solar LSAs overlap with an SSA, then again the presumption would always be in favour of wind.

Further details of this approach will be contained within the Renewable Energy SPG.

Opportunities for Co-location

The use of a hierarchy in this way also presents the opportunity for co-location in certain instances. For example, where land, in either a wind SSA or LSA (or indeed anywhere else), has already been consented for a wind development, the land beneath it may also be suitable to accommodate solar development, provided of course that it did not constrain the already consented wind development's operation. This would present a number of advantages, chief amongst which would be the most efficient use of land, but there would also be benefits, in many instances, in terms of being able to double up with the infrastructure (buildings, access tracks and transmission, etc.) that has been provided for the existing wind development.

Further details of this approach will be contained within the Renewable Energy SPG.

Sub Local Authority and Micro Scale

WG TAN6: Planning for Sustainable Rural Communities (2010) explains that planning authorities should seek to strengthen rural communities by helping to ensure that existing residents can obtain a higher proportion of their energy needs from local renewable sources (2010, p8).

WG TAN8 (2005, pp7-8) accepts that outside SSA 'there is a balance to be struck between the desirability of renewable energy and landscape protection.'

The approach taken by Policy RE1 and DM15 (see below) towards developments of a Micro or Sub Local Authority Scale is generally supportive whilst seeking to minimise individual and cumulative adverse effects on landscape and visual amenity.

The Policies

The objective of Welsh national planning policy on renewable and low carbon energy is positive whilst accepting the need to minimise adverse impacts on the environment, health and communities.

'to promote the generation and use of energy from renewable and low carbon energy sources at all scales and promote energy efficiency,

especially as a means to secure zero or low carbon developments and to tackle the causes of climate change. (PPW, 2016, p173).

The PCC LDP (2016, as amended by Further Focussed Changes, September 2016) contains the following general policy which supports both the WG PPW and Powys LDP objectives highlighted above.

Policy DM15 – Design and Resources

Development proposals must be able to demonstrate a good quality design and shall have regard to the qualities and amenity of the surrounding area, local infrastructure and resources.

Proposals will only be permitted where all of the following criteria, where relevant, are satisfied:

- 13. It demonstrates a sustainable and efficient use of resources by including measures to achieve:**
 - i. Energy conservation and efficiency.**
 - ii. The supply of electricity and heat from renewable sources.**
 - iii. Water conservation and efficiency.**
 - iv. Waste reduction.**

- 14. Investigations have been undertaken into the technical feasibility and financial viability of community and/or district heating networks wherever the development proposal's Heat Demand Density exceeds 3MW/Km². The list below represents the main options to be considered in descending order of preference:**
 - i. Connection to existing Combined Heat and Power (CHP) / Combined Cooling Heat and Power (CCHP) distribution networks.**
 - ii. Site wide renewable (and part renewable) CHP/CCHP and biomass (locally sourced) solutions.**
 - iii. Site wide gas-fired CHP/CCHP.**
 - iv. Site wide renewable (and part renewable) community heating / cooling and biomass (locally sourced) solutions.**
 - v. Site wide gas-fired community heating / cooling.**
 - vi. Individual building integrated renewable energy heating technology (non-domestic buildings only).**

This policy requires all development to include measures to achieve supply of electricity and heat from renewable sources. Criterion 13.ii) in particular, is important in helping to meet the contributions outlined in the previous section.

Criterion 14 is also important as a means through which developers will be encouraged to consider the potential deployment of a range of options that would deliver renewable or low carbon thermal energy.

Only those developments that exceed a Heat Density Demand of 3MW/Km² would be required to make this consideration. A simple calculation involving the numbers of units involved in a development, the floor space, and the use of a benchmark figure will determine whether a development crosses this threshold. The methodology for carrying out this calculation will be detailed within the forthcoming SPG on Renewable Energy.

It is anticipated that, assuming a development exceeds this threshold and undertakes the investigation into the technical feasibility and financial viability of deploying the options, the preferred option would only be implemented if it were demonstrated to be technically feasible and financially viable. Using this approach ensures that these options recommend themselves, rather than being made a requirement which all development would have to investigate as this would adversely affect the viability of proposed development.

Policy RE1– Renewable Energy

Impacts of renewable energy development arise from both the primary infrastructure and the associated development such as means and method of transmission, security and highway improvements and construction. Development may also lead to the change of land use.

The LDP and complementary legislation provide for the avoidance or appropriate mitigation of negative impacts. There are many environmental, social and economic considerations including:

Environmental: Disturbance and damage to fauna (e.g. bird strike), flora, soils, water quality and flow, habitat connectivity, landscape features, the night time environment, built heritage and archaeological assets, tranquillity and stillness, landscape character and views.

Social: Safety and human health from topple, disturbance and distraction (e.g. noise, glare and flashing) and highways works. Loss of agricultural, amenity, and recreation land, and of Rights of Way. Military training aviation.

Economic: Productivity / viability of project, interference with neighbouring land uses (e.g. strategic energy developments), industry based on landscape quality (in Powys Tourism) and secondary impacts on associated economic opportunities. Highways congestion and minerals safeguarding.

Decision making requires a balance between public benefit and harm. The policy does not include provision for environmental compensation. If appropriate

mitigation is not achievable and compensatory measures are required it is a good sign that the development would be unacceptable.

The first and second parts of the policy relate to wind farm developments at Strategic (over 25MW) and Local Authority wide (5 to 25MW) Scales, using the SSA and LSA approach. The third part relates to smaller scale (Micro and Sub Local Authority) Scale proposals whether they be from private or community-based sources. The fourth part is concerned with solar applications at all scales. Finally the fifth part provides the criteria that every proposal, irrespective of scale or technology, will be considered against. These include the landscape and visual impacts (See below). The supporting text for the policy is provided in the PCC LDP (2015 as amended by Focussed Changes Jan 2016).

The wording of the LDP RE1 policy is as follows:

Policy RE1 – Renewable Energy

Proposals for renewable and low carbon energy development, either on their own or in combination with existing or approved development, will be permitted subject to the following criteria:

- 1. Large scale wind farm developments (greater than 25MW) will be expected to be located within the boundaries of the Strategic Search Areas (SSAs).**
- 2. Proposals for wind developments (0 – 25MW) will be considered within the boundaries of Local Search Areas (Wind) subject to there being no unacceptable impact on visual amenity or landscape character in accordance with Policy DM3 - Landscape, through the number, scale, size, design and siting of turbines and associated infrastructure, and where they demonstrate an acceptable level of cumulative impact.**
- 3. Small scale and/or community-based wind turbine proposals (less than 5MW) will be considered in appropriate locations but will be required to demonstrate that impacts are confined to the local scale and with acceptable cumulative impact.**
- 4. Applications for Solar PV Farms (greater than 0.5MW) are encouraged in Local Search Areas (Solar). Applications for small scale stand-alone Solar PV developments (less than 0.5MW) are encouraged in appropriate locations but will be required to demonstrate that impacts are confined to the local scale and with acceptable cumulative impact and are not incompatible with other forms of development.**

5. All renewable energy or low carbon energy development proposals will be required to demonstrate that:

- a) Measures have been taken to minimise impacts on visual amenity, biodiversity, and the natural and historic environment;**
- b) There will be no unacceptable impacts on residential amenity;**
- c) The development will not compromise highway safety;**
- d) The development would not interfere with radar, air traffic control systems, telecommunications links, television reception, radio communication and emergency services communications; and**
- e) There are satisfactory proposals in place for site restoration as appropriate.**

Supplementary Planning Guidance (SPG) will be produced to support the Renewable Energy policy.

Summary:

This Topic Paper provides a context within which the LDP Policies relating to renewable and low carbon energy are set. This context is in the form of a summary of the key European, national (UK and Welsh) and local policies all of which have had some bearing on the development of the LDP policies.

It then presents the recommendations, along with their justification, for the detail of Policy RE1 as well as the other considerations that need to be borne in mind when considering the Policy itself.

Chief amongst the Recommendations are that Policy RE1 will be supporting the expectation that Strategic Scale proposals are to be confined to the Strategic Search Areas of which there are two wholly within the County. In addition it will also support an expectation that wind proposals between 5 and 25MW and solar proposals 0.5MW and upwards will be confined to Local Search Areas.

Secondly it presents the renewable energy contributions that the Policy will be supporting and presents the calculations, by way of a justification, that were used to determine those contributions.

The final recommendation is to again support the expectation that local policy on renewable energy to meet these LDP contributions is set in a way that does not duplicate or overlap National Policy.

Appendix 1: Map of the Powys Renewable Energy Search Areas

APPENDIX 2

Table 29 of the Powys REA (2016): Resource summary table for renewable electricity in 2026

Energy Technology	Existing Installed Capacity [MW]	Potential Installed Capacity [MW]	Capacity Factor	Existing Energy Generated [MWh]	Additional Potential for Energy Generated [MWh]	Percentage delivered by 2026	Total Additional Potential for Renewable Energy Delivered by 2026 [GWh]
Biomass [CHP]	2.5	46	0.90	19,710	362,664	5%	18
Energy from Waste	0.0	7	0.90	0	55,188	5%	3
Hydropower	8.8	15	0.37	28,523	48,618	30%	14
Landfill Gas	2.1	0	0.60	11,038	0	100%	0
Wind Power	312.7	1,124	0.27	739,598	2,658,485	25%	665
Solar PV Farms	-	1,234	0.10	-	1,080,984	50%	540
Other	0.5	0	0.45	1,971	0	100%	0
BIR	10.1	15	0.10	8,848	13,140	25%	3
Total	336.7	2,441	-	809,688	4,219,079	-	1,243
Projected electrical energy demand [2026]							606
Percentage electricity demand in 2026 potentially met by renewable energy resource							205%

Appendix 3

Table 30 of the Powys REA (2016): Resource summary table for renewable heat in 2026

Energy Technology	Existing Installed Capacity [MW]	Potential Installed Capacity [MW]	Capacity Factor	Existing Energy Generated [MWh]	Additional Potential for Energy Generated [MWh]	Percentage delivered by 2026	Total Additional Potential for Renewable Energy Delivered by 2026 [GWh]
Biomass [CHP]	5.7	154	0.5	24,966	674,520	5%	34
Energy from Waste	0.0	11	0.5	0	48,180	10%	5
BIR	60.4	83	0.2	120,538	145,416	25%	36
Total	66.1	248	-	145,504	868,116	-	75
Projected thermal energy demand [2026]							1,463
Percentage thermal demand in 2026 potentially met by renewable energy resource							5%