Powys Local Development Plan
Topic Paper
Renewable & Low Carbon Energy

DEPOSIT VERSION PAPER

March 2015

1.1 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 by the Planning Inspectorate (2014 p.22) 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.'*

1.2 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)
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

2. Powys County Council's (PCC) key LDP (2015) objectives for this topic are:

> *LDP Objective 4 – Climate Change and Flooding: 'to support the transition to a low carbon…Powys...'*
>
> *LDP Objective 5 – Energy and Water: 'to generate energy from appropriately located renewable resources to enable households, businesses and communities to meet their needs where acceptable in terms of the economic, social, environmental and cumulative impacts…' 'In particular, to: Provide 50,000kWe renewable electricity generating technology, 30,000kWt renewable biomass and 16,000kWt building integrated heat generating technology.*
>
> *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 – Built Heritage: 'to protect, preserve and/ or enhance and the distinctive built heritage, landscape and cultural assets of Powys and adjoining areas…'*

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

3. In the context of the LDP objectives, the approach of the LDP to Renewable & Low Carbon Energy is:

A. To rely on the Strategic Search Areas (SSA) in Technical Advice Note 8: renewable energy (TAN8). (See paras. 4-11, pages 2-3).

B. To set targets for the amount of renewable electricity and heat generating technology facilitated by the LDP at sub national scale. (See paras. 11-37, pages 3-6)

C. To set local policy on renewable energy to meet the LDP targets which does not duplicate or overlap National Policy. (See paras. 38-92, pages 6-15)

A. To omit policies identifying local micro-siting criteria and specific preferred locations and separation distances in and around SSA.

4. Welsh Government's (WG) Planning Policy Wales (PPW) (2014 p.169) 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.

5. Further to this WG PPW (2014, p.171) explains:

'…development plans should, where relevant, provide policies to clarify in the SSAs where strategic scale wind energy developments are likely to be permitted, for example by identifying local micro-siting criteria or identifying specific preferred locations. The SSA boundaries have been drawn to allow for some local refinement; however in defining such locations or criteria it will be important to ensure that they do not differ significantly without local evidence from the indicative boundaries of the SSAs set out in TAN 8.'

WG TAN8 (2005, p.13) explains:

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

6. In 2006 and 2008 PCC commissioned two refinement exercises regarding the Technical Advice Note 8: renewable energy (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, p.6). 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, pp.5-6). Furthermore, given the more detailed assessments before the Mid Wales conjoined wind farms public inquiry, Counsel for PCC (2014, p.40) 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'.

7. The Mid Wales conjoined wind farms public inquiry has provided an 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.

8. The outcome of the public inquiry will be known before adoption of the LDP. This decision, based on detailed information, will determine the location of strategic scale wind farm development in SSA in Powys.

9. WG TAN8 (2005 p.7) explains that local planning authorities may wish to establish suitable criteria for separation distances from the perimeter of existing wind power schemes or the SSAs.

10. PCC LDP Policy DM1, criterion 7 (2015) contains the principle of safeguarding important material assets and their operation including existing or approved strategic infrastructure. It is not, however, prescriptive on separation distances, leaving them to be determined on a case by case basis.

11. There is opportunity to prepare SPG on this matter once the outcome of the public inquiry is available.

B. By setting local targets for the amount of renewable electricity and heat generating technology facilitated by the Plan at sub national scale (see appendix 1 for coversion of kWe/t to GWh).

12. LDP Objective 5 includes local targets to provide an additional 50,000kWe installed capacity of renewable electricity, 30,000kWt renewable biomass and 16,000kWt building integrated renewable heat generating technology over the plan period.

13. Whilst Powys Local Service Board's One Plan (2014) is silent on the matter of renewable energy, PCC's Regeneration Strategy (2011, pp.51-56) 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.

14. The requirement to include a target comes from PPW (2014, p.168) 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.'*

15. PCC's opening statement (2013, pp.27-29) to the conjoined wind farms public inquiry includes a commentary on the progress toward renewable energy targets in the UK and Wales. It explains the first annual update of the UK Renewable Energy Roadmap shows the UK is on track to meet the first interim target on the way to the overall target of 15% renewable energy consumption by 2020. It also explains that progress towards the WG onshore wind energy aspiration of 2GW by 2015/2017 is 'healthy'.

16. The UK HM Government (2009, p.8) 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.

17. More recently, Nelson (2014) reports the EU leaders have agreed to cut Europe's greenhouse gas emissions by at least 40% by 2030, against 1990 levels. Two 27% targets were set. The first, for renewable energy market share, is binding only on the EU as whole rather than individual members states. The second, for the energy efficiency improvements, is optional although it could be raised to 30% by a review in 2020.

18. The local 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 (2014, pp. 170-171) (*highlights added*):

> *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****.*

19. Table 8 in PCC's REA (2013, p.19) predicts the total energy consumption for the Local Planning Authority (LPA) area in 2020 as 607GWh of electricity and 1,614GWh of heat. In 2026 (the end of the plan period) the totals predicted are 606GWh of electricity and 1,463GWh of heat.

20. If the UK HM Government (2009, p.8) lead scenario to meet the 2020 target is applied to the LPA area (on a pro rata predicted consumption basis) the Powys LPA area would need to contribute approx. 182GWh of electricity and 194GWh of heat from renewables in 2020.

21. Figure 3 in PCC's REA (2013, p.21) shows 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, p.8) lead scenario of 30% to meet the 2020 target.

22. Figure 3 in PCC's REA (2013, p.21) shows the existing capacity for generating renewable heat as 28GWh. This equates to less than 2% of the total predicted consumption in 2020, well below of the UK HM Government (2009, p.8) lead scenario of 12% to meet the 2020 target.

Local targets

23. 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 (2014, p. 171) 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 the local targets are set.

Renewable electricity

24. PCC (2014b) considers it a reasonable target for the LDP to facilitate an additional 82GWh of renewable electricity at the Local Authority-wide, Sub Local Authority and Micro scales of development.

25. This represents the difference between the baseline of existing capacity at 524GWh (Figure 3 in PCC's REA (2013, p.21)) and the predicted electricity consumption for the LPA area in 2026 (the end of the plan period) of 606GWh of electricity (Table 8 in PCC's REA (2013, p.9)).

26. During the LDP plan period there are likely to be new National Scale renewable electricity schemes which will mean that, if the LDP target is also met, more renewable electricity will be generated in the LPA area than the total amount consumed.

27. Research cited on Wikipedia suggests the average capacity factor for wind farms in 2008 was 21% ('Capacity factor', 2015). The REA (2013, pp.52-56) shows 214.1 MWe installed capacity generates 524GWh equating to a 28% capacity factor.

28. Assuming a conservative capacity factor of 20% , 50MWe approx. generating capacity is needed to meet the 82GWh target. (50 x 8760 x 0.2 = 87600 MWh or 87.6 GWh)

29. To minimise wider environmental harm, PCC (2014, p.4) supports the strategic approach to the location of wind farms contained in PPW and TAN8 of identifying SSA.

30. It is important that the LDP balances a positive approach towards renewable energy required by WG PPW (2014, p.168) with minimising landscape and visual impact from renewable energy developments elsewhere in the LPA area. This is a key component of Policy RE1.

31. If developed in line with LDP policy across the LPA area, facilitating 50MWe approx. renewable electricity generating capacity is considered compatible with the LDP Objective 13 – Built Heritage: 'to protect, conserve and where possible enhance the distinctive built heritage, landscape and cultural assets of Powys and adjoining areas…' (2015).

Renewable heat

32. PCC (2014b) considers it a reasonable target for the LDP to facilitate an additional 148GWh of renewable heat at the Local Authority-wide, Sub Local Authority and Micro scales of development.

33. This represents the difference between the baseline of existing capacity at 28GWh (Figure 3 in PCC's REA (2013, p.21)) and 176GWh which is 12% of the 1,463GWh predicted heat consumption for the LPA area in 2026 (the end of the plan period). (Table 8 in PCC's REA (2013, p.9)). The 12% derives from the UK HM Government (2009, p.8) lead scenario to meet the 2020 target

34. This is a very challenging target. Table 4 in PCC's REA (2013, p.7) identifies the maximum potential for renewable heat, by 2026, as just 97MWt, including opportunities provided by energy from waste.

35. The REA (2013, pp.52-56) shows 5.7MWt installed biomass generates 25GWh giving a 50% capacity factor. For building integrated renewables the equivalent capacity factor given is 20%.

36. To meet the 12% 2020 target of supplying an additional 148GWh by the end of the plan period, overall 44% of the potential biomass and building integrated renewables must be realised. Facilitating 30MWt of biomass and all of the building integrated renewables would provide 147GWh of renewable heat, just shy of the target.

Table 1. REA Renewable Heat.

Potential installed capacity MWt (REA Table 4 Page 7)	Capacity Factor	Potential energy generated
Biomass 70 MWt	@50%	306.6GWh
Building Integrated Renewables 16 MWt	@20%	28GWh

Total		335GWh

37. PCC has noted the Severn Wye Energy Agency concerns (2013b, pp. 5-7) that the REA significantly underestimates the potential for energy from Anaerobic Digestion (AD) as a source of biomass because non-woody biomass has been completely excluded. Additional heat and power from AD requiring planning permission will be monitored and will contribute to meeting the local targets.

C. Local policy on renewable energy which does not duplicate or overlap National Policy.

38. WG PPW (2014, p.18) 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 by the Planning Inspectorate (2014, p.8) 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.

39. These principles underpin the policy approach in the LDP.

40. WG PPW (2014, p170) describes the four scales of renewable and low carbon energy development. These are repeated in the table below as they provide the framework of scale for 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

41. WG PPW (2014, p. 172) explains sub-local authority scale renewable energy projects are applicable in all parts of Wales and that development plans should encourage such development and clearly set out the local criteria against which such proposals will be evaluated.

Policy – general approach

42. 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. (WG, 2014, p. 161).

43. The PCC LDP (2015) contains the following general policy which supports both the WG PPW and Powys LDP objectives highlighted in para. 42 and 2 respectively.

> *Policy DM2 – Detailed and Site Specific Planning Matters:*
>
> *In addition to the requirements set out in National Guidance, all proposals for development will be permitted where they comply with the following:*
>
> *14. All development must demonstrate a sustainable 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.*

44. This policy requires all development to include measures to achieve supply of electricity and heat from renewable sources. Criterion 14 ii) in particular, is very important in meeting the ambitious target of facilitating an additional 148GWh of renewable thermal / heat over the plan period.

45. Supplementary Planning Guidance (SPG) may be produced to support this policy.

Policy RE1– A balanced approach for Powys

46. 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.

47. 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, 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.

48. 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.

49. The first criterion of the policy provides the policy for developments of a Micro or Sub Local Authority Scale. The second criterion relates to Local Authority Wide Scale or Strategic Scale development proposals (see table 2, page 7). The third criterion considers landscape and visual impact. WG PPW (2014, p.168) explains it is committed to using the planning system to optimise renewable and low carbon energy generation. The fourth requires an appropriate design process whereby proposals must demonstrate efficiency, economy and effectiveness (so as to minimise the potential for adverse impacts).

50. The supporting text is provided in the PCC LDP (2015)

51. The PCC LDP (2015) contains the following specific policy supporting both the WG and PCC policy objectives highlighted in para. 39 and 2 respectively:

Policy RE1 – Renewable Energy:

Proposals to generate energy from renewable and low carbon sources and associated infrastructure will be supported for up to 5MW (5,000kW), subject to criterion 1 and 2 below and all other relevant LDP policies.

Proposals for between 5 MW (5,000kW) and 50MW (50,000kW) will be determined in accordance with National Policy / Guidance, subject to criterion 1 and 2 below and all other relevant LDP policies.

1. *All proposals must be incidental to existing visual and sensory landscape characteristics (as defined by LANDMAP).*

2. *All proposals must demonstrate efficiency, effectiveness and economy to minimise individual or cumulative adverse impacts, in particular where located in the open countryside, by:*

i. *Being carefully sited having regard to climatic factors, alternative sites, the prevailing landscape / skyscape character and views, topography, soils and vegetation, land allocated and or safeguarded for other purposes and the proximity to and potential impact on receptors; and*

ii. *Having appropriate design on matters of scale (numbers, massing and height), density, appearance (details e.g. lighting, colour / shape of structure, angles and materials); and*

iii. *Incorporating measures which mitigate adverse impacts on receptors, and ensure future maintenance and decommissioning where appropriate.*

Note:
'Open countryside' means land outside development boundaries.
'Receptors' may include land uses and rights of way sensitive to the proposal and species, sites, landscapes, landscape features, buildings and structures protected by the Powys LDP, neighbouring LDP's, LDF's, neighbourhood plans and or other complementary legislation and national guidance.

Sub local authority and micro scale

52. 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, p.8).

53. WG TAN8 (2005, pp. 7-8) accepts that outside SSA 'there is a balance to be struck between the desirability of renewable energy and landscape protection.'

54. The approach taken by Policy RE1 towards developments of a Micro or Sub Local Authority Scale is generally supportive whilst seeking to minimise individual and cumulative adversely effects on the landscape.

Local Authority Wide or Strategic Scale

55. Criterion 2 of policy RE1 relates to development of a Local Authority-wide or Strategic scale. The LPA is not the decision maker on any proposals above 50MW and so it is not appropriate to include policy on such schemes in a 'local' development plan.

56. PCC's REA (2013, p7) describes the dominance of the potential for wind energy.

The total potential electrical capacity is dominated by wind energy deployment, with minimal potential contributions from Biomass CHP, Anaerobic Digestion plants, hydro power sites, and building integrated renewable technologies.

57. WG has clear guidance for onshore wind developments above 5MW in TAN8 (2005, p.8) i.e. that they should be located within SSA's and urban/industrial brownfield sites.

58. Other proposals at this scale would need to be considered in accordance with PPW, TAN8 and the LDP's development management policies and the remainder of Policy RE1.

Other considerations for renewable energy proposals

59. WG PPW (2014, p.24) explains that development management guidance may be dealt with appropriately in some instances in a generic fashion rather than in separate topic policies. It also provides the considerations for LPAs to take into account when determining applications for renewable and low carbon energy development and associated infrastructure details (2014, p.172). Furthermore it explains that national planning policies should not be repeated in LDPs (2014, p.18).

60. Table DM1 in the LDP (2015) explains that if a development proposal is supported in principle by Policy RE1, it must also be considered against the criterion in generic development management policies DM1 – Strategic Planning Matters, DM2 – Detailed and Site Specific Planning Matters and DM3 – Planning Obligations.

61. WG PPW (2014, p.10) explains the principle of non-duplication of legislation i.e. the planning system should not be used to secure objectives achievable under other legislation. In preparing the LDP, PCC has sought to abide by this principle. It is recognised that the impact of other legislation may still be material to decisions taken on planning applications regardless of whether there is any reference to it in the LDP.

62. In accordance with guidance from The Planning Inspectorate (2014, p.3), the story of how the plan was prepared and of the legislative background is not included within the LDP. The LDP does not set out all of the requirements of complementary legislation even though these requirements have the potential to impact on decisions taken on planning applications

63. However, on the matter of Renewable Energy, The Planning Inspectorate (2015, p.4) advised that a criteria-based policy would normally clarify how development would be assessed against particularly sensitive receptors (e.g. areas of significant biodiversity or landscape value). Policy RE1, criterion 3 and 4 are included accordingly, recognising there will be a duplication of considerations in this instance.

Landscape and visual impact

64. WG TAN8 (2005, pp. 7-8) accepts that outside SSA 'there is a balance to be struck between the desirability of renewable energy and landscape protection.'

65. During the conjoined wind farm inquiry PCC (2014, pp.41-45) adopted a consistent methodological approach to the landscape and visual impact assessment citing four

landscape scenes as a basis for determining impact. These are detailed in Table 3 below. The general premise of the methodology is to consider the degree of change to a particular scene. Where the proposed elements are different to the character of the existing scene the result is usually an adverse effect. This approach is consistent with using LANDMAP as a basis for explaining the existing scene.

Table 3. Four landscape scenes as a basis for determining impact of development proposals.

Name	Description	Magnitude of landscape visual impact.
Wind farm landscape	A landscape in which the turbines become the dominant characteristic	Substantial
Landscape with wind farm sub-type	A landscape in which turbines become a co-dominant or equally prominent characteristic	Moderate-substantial
Landscape characteristics dominant over the wind farm	Wind farm seen as an object within the landscape, prominent but not dominating or changing overall character	Moderate to moderate-low
Wind farm incidental to existing landscape characteristics	A landscape in which turbines are incidental to existing landscape characteristics	Moderate-low

66. Given the substantial impact of SSA on the landscape in the planning area, Policy RE1 seeks to minimise the impact of renewable energy on the landscape outside SSA in the remainder of the planning area. In the table above, substitute wind farm for renewable energy generating equipment and associated infrastructure.

67. Renewable energy proposals must have the minimum landscape / visual impact to meet the policy.

68. The approach is considered compatible with the LDP objectives.

Cumulative impacts

69. WG TAN8 explains that local planning authorities may wish to consider the cumulative impact of small schemes in areas outside of the SSAs (2005, p.7).

70. The criterion requires the in-combination consideration of impacts of development. This is an appropriate approach because the LDP does not allocate renewable energy development in specific locations and so a strategic assessment at plan making level is not possible.

71. The LPA will monitor the location of consented and operational renewable energy projects requiring planning permission from the LPA and will require monitoring of the associated mitigation. This will enable the consideration of cumulative impacts of this development type on an application by application basis. It will also allow the progress towards the LDP targets to be measured.

Efficiency, Effectiveness &Economy and Siting, design &mitigation.

72. WG PPW (2014, p.168) explains it is committed using the planning system to optimise renewable and low carbon energy generation.

73. In this context, the LPA takes this to mean the WG wants the planning system to find the best compromise among several often conflicting requirements. Good siting, design and appropriate mitigation are essential to securing permission.

74. The scale and understanding of landscape context of the proposal is key to developing an acceptable scheme.

75. The context of the proposal is set by the location and opportunities presented by the site. This will require a consideration of the effectiveness of the various technologies.

76. WG PPW (2014, p.173) explains that planning conditions or obligations may be used to mitigate impacts, and secure the benefits and opportunities arising from a renewable or low carbon energy development proposal.

77. The policy requires proposals to incorporate mitigation measures, the reasoning is so they may be considered as part of the proposal rather than as an afterthought. Policy DM 3 (2015) is a general development plan policy providing development plan status for negotiating planning obligations, for instance decommissioning where necessary.

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