

Flintshire Local Development Plan

Background Paper: Renewable Energy

Deposit LDP

September 2019

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1. Introduction

- 1.1 The Council is in the process of preparing the Local Development Plan (LDP) which will guide development in the County between 2015 and 2030. The LDP will identify certain locations where new development, such as housing and employment will be permitted, whilst also seeking to protect other areas from development. Once adopted, the LDP will form the basis for making decisions on individual planning applications in the County.
- 1.2 This background paper is one of a range of papers prepared to support the Deposit LDP and explains the Council's rationale and approach to determining the policy approach to renewable energy. Each background paper can be read in isolation or in conjunction with the Deposit Plan and the earlier topic papers and other background papers that have been prepared.
- 1.3 This background paper provides the explanation of the methodology and assumptions made in order to inform the renewable energy policies of the Flintshire Deposit LDP 2015-2030, following the outputs of the Flintshire Renewable Energy Assessment (REA), and in line with the new guidance in Planning Policy Wales edition 10 (PPW).
- 1.4 The REA as part of the LDP evidence base has been developed by consultants AECOM working for the Council, and has been informed by the defined process contained within the *Welsh Government Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners*. PPW refers local authorities to use this toolkit as part of developing suitable policies for renewable energy in their local development plans, emphasising that the approach should be adapted to local circumstances in order to enable renewable energy opportunities to be maximised. PPW goes on to state that: "*planning authorities should ensure development plan policies are supportive of renewable and low carbon energy development in all parts of Wales, direct developments to the right locations and set out clearly the local criteria against which proposals will be evaluated*".
- 1.5 Whilst PPW does not distinguish or prioritise specific technologies per se, the REA will generally focus on the potential for wind and solar PV farm development given that these have the potential to have the greatest spatial extents and commensurate impacts, but will also consider the potential for other renewable and low carbon energy sources including heat, hydro-power, and biomass.

2. Background

- 2.1 The publication of PPW edition 10 has provided an even clearer statement of intent in relation to Welsh Government policy in relation to delivering clean growth and the de-carbonisation of energy, and the role that the planning system should play in this. This emanates from the target set by the Environment (Wales) Act to reduce greenhouse gas emissions by at least 80% by 2050, and the interim or transitional targets as set out in *Energy Wales: A Low Carbon Transition*. PPW also clarifies that for onshore energy generating projects in Wales which have an installed generating capacity of over 10MW, planning applications are to be made directly to the Welsh Ministers under the Developments of National Significance (DNS) process. Clearly this means that in practice, whilst the LDP cannot limit any local search areas for renewables it defines in its LDP, it can only deal with applications that have an installed capacity of up to 10MW.
- 2.2 Notwithstanding the strong presumption in national policy and the requirements in PPW to not use constraints to limit the identification of the spatial potential for renewables, the Planning Authority must still balance this very general presumption in favour of renewable development, against the potential impacts of renewable and low carbon energy proposals, measured against all of the other material planning considerations and policies in the deposit LDP. This back ground paper therefore aims to set out how the national policy context and assessment of potential have been taken on board and have informed appropriate local policies in the LDP.

National Policy and Guidance – Planning Policy Wales

- 2.3 The Welsh Government has set targets for the generation of renewable energy:
- For Wales to generate 70% of its electricity consumption from renewable energy by 2030;
 - For one Gigawatt of renewable electricity in Wales to be locally owned by 2030; and
 - For all new renewable energy projects to have at least an element of local ownership by 2020.
- 2.4 Whilst these represent a clearly defined vision within PPW, these targets (other than for wind at the strategic scale) lack an empirical basis or assessment of the level of capacity in Wales to deliver on these. As PPW intimates, this is left to the planning system at the local level to play an “active role” to help ensure the delivery of these targets, encouraging local authorities to take an active, leadership approach by identifying challenging but achievable targets in development plans. PPW suggests that to set such targets, this should be expressed as an absolute energy installed capacity figure, calculated from the resource potential of the area. The ‘scale’ of this resource is derived from the outputs of the renewable energy assessment (REA), which poses issues that centre around the weight to attach to calculations based on REA outputs given the level of assumptions made to derive

these outputs, as informed by the nature of the methodology as set out in the Welsh Government Toolkit. Furthermore, there are a number of other unknown factors to do with land availability, cumulative impact, and market interest and so on which in reality limit the potential to deliver renewable energy opportunities / targets.

- 2.5 Fortunately Flintshire is already a contributor to the targets set out in 2.3 above with existing private and local authority developed solar PV farms, and proposals for two further Council developed solar PV farms allocated in the deposit LDP. In addition, significant heat potential exists from a large energy from waste plant at Parc Adfer on Deeside, which has been developed for a consortium of local authorities in North Wales led by Flintshire, to deal with the cumulative residual waste from these authorities. Notwithstanding this and the lack of detailed national guidance about the capacity to achieve the national renewable targets, the Council has carried out a REA in accordance with the Welsh Government toolkit. The Council have also been provided with significant guidance from officers at Powys County Council who have developed expertise in the application of the toolkit and the consideration of the resultant REA at their LDP examination, working with the same consultants AECOM who developed the REA for Powys, and in fact who also developed the toolkit for Welsh Government.
- 2.6 Notwithstanding previous guidance on thresholds to use for identifying the appropriate scale for wind and solar potential assessment, the Flintshire REA has sought to identify local search areas capable of accommodating large scale solar PV farms and onshore wind farms, where large scale could accommodate development of at least 5MW for each technology.

National Policy and Guidance – Draft National Development Framework

- 2.7 Whilst there has been a delay in finalising the deposit LDP due to the publication of PPW10 in December 2018, just at the point where the LDP had been drafted in line with PPW9, similarly coincident with the Council approving the deposit LDP to go out for public consultation (July 2019) the Welsh Government issued the draft National Development Framework (NDF) for consultation. The weight to attach to its content is unclear however on the presumption that the NDF will be finalized in the form published for consultation, its proposed policies have a bearing on the way renewable energy will be dealt with at the strategic and local levels.
- 2.8 The NDF has defined a spatial strategy to give expression to the targets for renewable energy generation contained in PPW. Proposals for large scale energy development are classed as Developments of National Significance (DNS) and are determined by Welsh Ministers. Proposals below the threshold for Developments of National Significance are determined by local planning authorities. Large scale energy developments include:
- All on-shore wind generation over 10 mega watts generating power (installed capacity);

- Other renewable energy generation sites with generating power between 10 mega watts and 350 mega watts.
- 2.9 The Welsh Government’s spatial priority is for large scale wind and solar PV development to be directed towards “Priority Areas for Wind and Solar Energy” which they have defined on a generalised ‘proposals map’ (see appendix 1). The policies in the NDF relating to renewable and low carbon energy have a presumption in favour of large scale on-shore wind and solar energy development in these areas, an acceptance of landscape change and a focus on maximizing benefits and minimising impacts. Communities will be protected from significant cumulative impacts to avoid unacceptable situations whereby, for example, smaller settlements could be potentially surrounded by large wind schemes.
- 2.10 There are no priority areas for wind development in the NDF for Flintshire but there is a priority area for solar energy that straddles the border between Wrexham and Flintshire, predominantly lying within Wrexham with a relatively small proportion covering an area at the south eastern limit of the County boundary. It is difficult to be more precise from the limited quality of the mapping released with the NDF to date, and equally it is also unclear if the Priority Areas have been derived using a toolkit approach as if not, it leaves the unanswered question of what has been the approach and how does this affect the approach taken for the deposit LDP. There will need to be further work to rationalize these issues and this will also be reflected in comments made by the Council to the draft NDF.

Method and approach taken to the REA

- 2.11 As previously stated the Welsh Government Toolkit for Planners has formed the basis in producing the REA for the Flintshire LDP, whilst acknowledging local circumstances as enabled by PPW10. Also as previously stated a combination of officers from Powys and consultants AECOM have been commissioned to assist in producing the REA, given their respective previous levels of experience in this field and having produced and successfully defend the Powys REA at examination.
- 2.12 PPW encourages the opportunities to enable renewable energy to be maximized and encourages the conversion of REA findings into policy to not be too locally constrained or limited to a local energy need, as the targets set for renewable energy by Welsh Government are national targets which all local authorities in Wales are required to contribute to meeting.
- 2.13 PPW goes on to state that local authorities should use the evidence from the REA to establish spatial policies in their development plans to show the most appropriate locations for renewables development and where once defined, “*there should be a presumption in favour of development in identified areas, an acceptance of landscape change, with clear criteria-based policies setting out detailed locational issues to be considered at the planning application stage*”.
- 2.14 The Council is concerned about this requirement as there is a clear conflict within policy guidance that required locations to be identified using the REA and Toolkit

where a presumption in favour of development should be specified, but where any site-specific planning application must be subject to significant criteria based policy tests which may rule it out. This seems confusing as it appears to create a false premise about the positive weight to apply to locations identified in the development plan, when the process of arriving at these areas via the Toolkit approach is little more than a technical exercise in 'sieve mapping' based on a series of pre-set assumptions.

- 2.15 In such circumstances there is a danger of placing too much weight on the Indicative Local Search Areas defined from the REA work in order to comply with PPW and give spatial expression to the encouragement of renewable energy. That said the Council has followed the Toolkit approach; the assumptions made and outputs from this process are described in the following sections.

Clarifying the context and weight to attach to the REA outputs

- 2.16 Notwithstanding the Welsh Government's vision for renewables contained in PPW, there is little in the way of actual policy guidance to assist local authorities in giving expression to this vision. Each local authority is left therefore to define the local approach and circumstances in which compliance with the vision can be achieved. There is for example no requirement to call for candidate sites specifically for renewable and low carbon energy technologies during the plan making process, which may help identify available areas of search, as well as better promote the community's involvement in defining schemes and locations.
- 2.17 From the available guidance and the Toolkit, the Council has set out to identify suitable locations - **Indicative Local Areas of Search (ILSA)** – for potential local authority wide renewable schemes for Wind and Solar PV of 5MW or above.
- 2.18 These levels are considered reasonable starting points as they were when specified in PPW9 before revision. That said, in terms of the determination of applications for either wind or solar PV farms, anything of 10MW or above would be determined directly by the Welsh Ministers under the Developments of National Significance (DNS) process.
- 2.19 Whilst PPW encourages a range of technologies to be considered, and the REA will cover these, it is wind and solar PV farm development that have the most significant spatial implications as well as a range of other material planning considerations. Whilst PPW encourages the ILSAs to be identified on the proposals map and given a presumption in favour of development, the Local Planning Authority still has to consider applications for renewables and weigh their impacts in the planning balance against other material considerations.
- 2.20 in terms of what the REA (and ILSAs) represent:
- The REA ***IS NOT***:
 - A series of planning applications for renewable technology;

- A series of allocations or designations specifically promoting renewable technologies;
 - The likely maximum extent of renewable development;
 - A definitive or realistic expression of the capacity for renewable energy in the County.
- The REA **IS**:
 - A strategic high level document following a technical sieve mapping exercise based on a range of assumptions;
 - Provides guidance as to what each local authority across Wales **could contribute** towards National Targets across a wide range of renewable and low carbon technologies.
- 2.21 Despite what PPW encourages in terms of the status of ILSAs, in the context of the stage reached with the Flintshire REA, ILSAs **DO NOT** mean an automatic presumption in favour of RE development. This is because the areas identified are the ‘smoothed’ outputs from the REA and have been identified as those parts of the County **least constrained** by following the steps in the guidance published by the Welsh Government. They have not yet been subject to further assessment and refinement, for example by carrying out a landscape assessment of the ILSAs to determine the degree of landscape impact that development of renewables in each area would have. This work will follow the publication of the deposit LDP and will form part of the evidence base supporting submission of the LDP for examination. It is also unclear whether the land identified is actually available for the suggested use, something that the deposit consultation can help to refine. Also, development proposals could come forward outside ILSAs subject to satisfying policy requirements and other material considerations. ILSAs are therefore ***the first place to look, but not the only place to look.***

3. REA Baseline Assumptions and Approach

- 3.1 As has already been stated, the Council have employed a combination of an officer at Powys County Council and consultants AECOM to carry out the REA for Flintshire. The workflow on the REA can be divided into a number of distinct phases, with the early phases (1-3) providing sufficient information to inform policies in the deposit LDP for it to go out for public consultation, and further work required on subsequent phases (4-6) to test and refine the outputs from phases 1-3. This later work will happen during/following the deposit consultation period and prior to submission for examination.
- 3.2 The work involved in preparing the REA can be broken down into the following phases:
1. Alignment of the evidence with the Plan area and other parts of the Plan;
 2. Correct application of identified constraints;
 3. Consideration and ‘smoothing’ of outputs to define initial ILSAs and calculate maximum indicative renewable and low carbon energy contribution from initial ILSAs;
 4. Landscape assessment of initial ILSAs taking account of development type;
 5. Checking other factors including grid connectivity, SA/SEA;
 6. Calculation of revised renewable and low carbon energy contribution which Flintshire could make during the Plan period.

Rationale and baseline assumptions

- 3.3 The work on the REA as set out above has been underpinned by the assumptions and parameters identified in the Welsh Government Toolkit. This approach enabled high level strategic planning outputs to be derived to identify least constrained areas and inform the development of initial Indicative Local Search Areas for onshore wind and solar PV farm technologies, at the Local Authority-wide scale as defined by Planning Policy Wales and of the renewable energy policy in the LDP (policy EN13).
- 3.4 Full details of the baseline assumptions used in the REA work carried out by AECOM are as set out in the toolkit and adapted to local use for Flintshire, and are set out in detail in appendix 2 for both wind and solar PV. To highlight the main parameters and assumptions, these include:
- A) Onshore wind technology assumptions:**
- Individual wind turbines are 2MW, 120m to blade tip;
 - A minimum of 0.5 sq km is required to achieve 5MW lower threshold for Local Authority-wide schemes;
 - A 500m noise buffer around all buildings;
 - Buffers of 7km around existing, consented and proposed wind development to minimise cumulative impact;

- “Looking out” buffers of 7km for Protected Landscapes of National Parks and AONBs;
- All statutory environmental designations (SAC, SPA, SSSI);
- All statutory historic designations (SAMs);
- National Air Traffic Control Services (NATS) radar safeguarding data.
- CAA restricted airspace.

B) Solar PV technology assumptions:

- Solar PV farm installations of 0.5MW and greater are viable and occupy 1.2ha;
- A minimum threshold of 0.12 sq km (12ha) is required to achieve the 5MW lower threshold for local-authority wide schemes;
- Solar PV farms would be limited to Agricultural Land Classification (ALC) Grades 3b-5, and in terms of renewable and low carbon energy resource, ALC Grades 3b and 4 could be used for the growing of biomass to support other technologies;
- “Looking out” buffers of 3.5km for Protected Landscapes of National Parks and AONBs;
- All statutory environmental designations (SAC, SPA, SSSI);
- All statutory historic designations (SAMs);
- CAA restricted airspace (glint and glare).
- No solar PV farm development within settlements (policy directed to Building Integrated renewable technologies)
- C1/C2 flood zone for vulnerable developments

3.5 To reiterate clarification points from section 2 above, the identification of initial ILSAs arising from the application of the Toolkit process and the above constraints **does not** mean an automatic presumption in favour of any renewable or low carbon energy development within the areas identified. ILSAs represent the areas for two particular renewable energy technologies which offer the best opportunities by having been identified as **least constrained** by utilising the Toolkit as a ‘sieve mapping’ exercise and as a consequence, development proposals could come forward outside ILSAs if site specific constraints are mitigated.

3.6 By identifying initial ILSAs for onshore wind and solar PV farm technologies through a series of standardised assumptions as informed by the Toolkit, the Council is aiming for compliance with guidance in PPW, but recognises that whilst ILSA should be the first place to look for Local Authority-wide scale renewable developments, they need not be the only place to look.

4. Outputs and Interpretation

Phase 1

- 4.1 The REA has been assessed by AECOM for all technologies to ensure alignment with the Plan area. Much renewable energy data is published County-wide and the consultants have identified an existing baseline of renewable and low carbon energy generation, and ensured use of the latest available versions of the respective constraints data to identify the potential over the plan period.

Phase 2

- 4.2 Work was undertaken on the spatial representation of the initial Indicative Local Search Areas (ILSA) for solar PV farm and onshore wind farm technologies by AECOM. To improve clarity of approach and outputs, a sequence of maps for onshore wind (W series maps) and solar PV (S series maps) were produced as follows:

Map 1 – unconstrained total resource;

Map 2 – identified statutory and strategic constraints;

Map 3 – remaining least constrained resource expressed as land parcels above and below the 5MW lower threshold after applying statutory and strategic constraints;

Map 4 – Identified Local constraints;

Map 5 – Remaining resource after applying all constraints;

Map5a – ‘Smoothed’ initial Indicative Local Search Areas excluding areas of previously identified statutory environmental constraints;

Map 6 - remaining resource after consideration of the national grid expressed as land parcels above and below the 5MW lower threshold within 10km of at least a 33kV electricity line.

URL links to the REA output maps for wind and solar PV are provided in appendix 3.

- 4.3 From this additional work, the **least constrained** land parcels could be identified for both solar PV farms and onshore wind opportunities which were both above and below the thresholds as described in Section 3.4 above.

Outcomes for Onshore Wind Technology at End of Phase 2 (Map W3)

- 4.4 For onshore wind, based on the assumptions applied in the REA and including all of the relevant constraints which would in reality adversely impact delivery, there were no remaining unconstrained areas of land identified for wind installations of greater than 5MW installed capacity. This is primarily driven by the application of a combination of three nationally important strategic constraints, The MoD military low fly zones and principally the NATS air traffic control safeguarding area, which blankets the entire County given proximity to a number of airports and flightpaths, together with the presence of the Clwydian Range AONB and the outward looking

3.5km buffer, which the Council applied due its duty to have regard to the purposes and designation of the protected landscape

- 4.5 As a consequence, it has not been possible to define Local Search Areas for onshore wind technologies of 5MW or more for Local Authority-wide scale developments, and the assessment for wind has not proceeded beyond Map 3 therefore.
- 4.6 The Council recognise that some wind potential remains for single turbine installations, as have occurred previously, but these would be addressed on application on a site specific basis and the Plan will have an enabling policy framework for such development to be considered.

Outcomes for Solar PV Farm Technology at End of Phase 2 (Maps S5/S6)

- 4.7 For solar PV farms, based on the assumptions applied in the REA, least constrained parcels of land above and below the 0.12 sq km threshold were identified across the County.
- 4.8 From this distribution, the most concentrated least constrained land parcels were grouped into 18 initial Indicative Local Search Areas that could be identified for solar PV farm installations of 5MW or more in installed capacity to identify on the deposit LDP proposals map to be taken forward for consultation (Map S5). At this phase of assessment, these areas could be said to represent the maximum indicative potential from the least constrained areas of Flintshire having applied the Toolkit approach and specified statutory and local constraints. That said, it would still be possible to consider proposals outside these ILASs subject to suitable justification and mitigation. For example whilst flood risk has been identified as a constraining factor in Deeside and along the industrialised coast in Flintshire, conversely this is where one might otherwise expect there to be most significant potential for solar PV to exist, particularly given the community and economic benefits of locating solar PV development there that would result.

Phase 3

- 4.9 As the Toolkit provides no guidance on the defining of LSAs, and as the Map S5 outputs are somewhat 'artificial' and fragmented, these areas have been 'smoothed' into the 18 ILSAs shown in Map 5a, using a basic set of guidelines as follows:
- Initial ILSA's should have a minimum size of 0.12 sq km.
 - An initial ILSA should not include a statutory environmental designation (e.g. SPA, SAC, SSSI), although non-statutory designations may be included (such as woodland and buildings). Statutory heritage designations can be included as setting can be considered at site specific development proposal stage.

- Boundaries have been drawn “tight” to clusters of least constrained land parcels so some “outliers” have been excluded.

4.10 These initial ILSAs for solar PV farm potential will be shown on the deposit LDP proposals map for the purposes of consultation. This will allow comments to be made and considered about the areas and their extent. The REA report will also be made available for the consultation along with all of the output maps referenced above, and the report will also provide an initial calculation of the maximum Energy (MWh) potential of the cumulative ILSAs, prior to further work being done to potentially refine these areas and their realistic potential.

Further Phases of Assessment

4.11 Whilst it is considered that the initial ILSAs identified for solar PV farm development and shown on Map S5a are in general compliance with the requirements of PPW and the Toolkit, further phases of work will continue in order to test and refine the initial areas identified. These phases of work will comprise a landscape assessment of each of the 18 initial ILSAs (phase 4); checking the initial ILSAs against other factors such as electricity grid connection, and the Plan’s SA/SEA process (phase 5); a review of the likely Energy contribution from the solar ILSAs that Flintshire could make during the Plan period (phase 6). This may mean that some of the areas are revised or omitted, and also that the REA report will need to be updated to reflect the final calculation of realistic installed potential once the above phases are complete. The final figures can be updated in the REA in advance of submission for examination and the capacity or generation target/potential can also be set out in supplementary planning guidance to accompany the policy again in advance of submission.

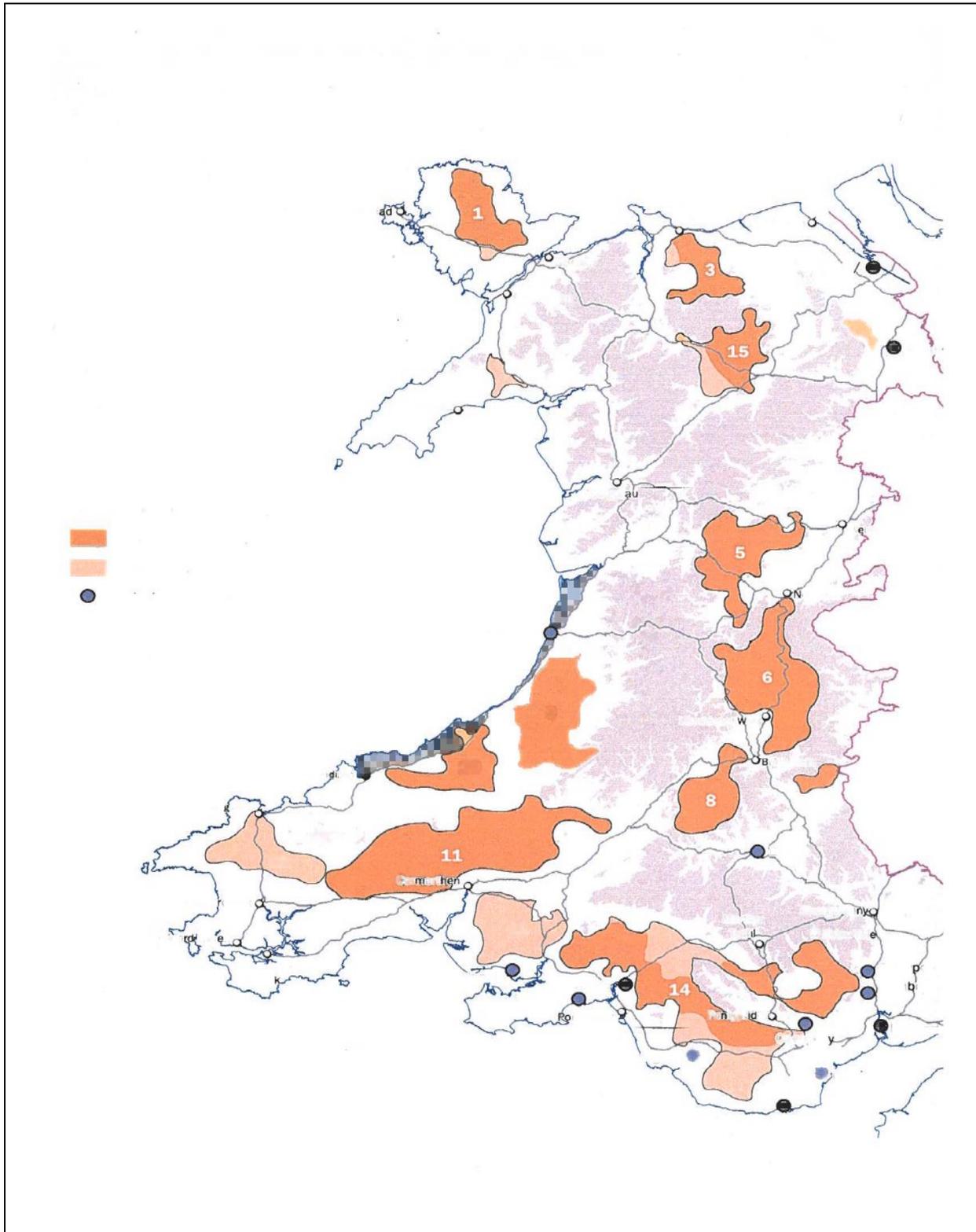
4.12 Clearly, to be fully compliant with PPW the REA report will also consider the potential across other forms of renewable and low carbon energy technologies other than wind and solar PV farm development. Equally, the policies in the deposit LDP also take account the potential to develop small schemes below the minimum national policy thresholds, which the Plan is generally supportive of.

4.13 Although no ILSAs for onshore wind have been identified, proposals for wind could still come forward. In particular technological advances in turbine generating capacity and site specific circumstances may mean that individual proposals may be considered acceptable subject to suitable justification and mitigation, judging each case on its merits. Similarly it may be possible for solar PV farm proposals to come forward and be considered on a similar basis, outside of the identified ILSAs.

5. Summary

- 5.1 For larger scale electricity generation from solar PV farms, Indicative Local Search Areas (ILSAs) are identified on the proposals map to support policy EN13 of the deposit LDP. ILSAs are intended to inform potential solar farm developers to better target their detailed site investigations. Solar PV farm ILSAs are in essence: ***the first place to look, but not the only place to look.***
- 5.2 As such, it is important to remember that the Renewable Energy Assessment and the identification of Indicative Local Search Areas **are not**:
- A series of planning applications for renewable and low carbon technologies;
 - Defining areas as formal allocations or designations which will be given over to renewable and low carbon technologies;
 - Industrialising the County.
- 5.3 The Renewable Energy Assessment **is**:
- A strategic high level document based on a series of assumptions;
 - Providing guidance on available opportunities and what the Local Authority could contribute towards National Targets across a wide range of renewable and low carbon technologies.
- 5.4 All applications will be considered on their own merits, inside or outside an LSA, in accordance with planning policies and other material considerations. In accordance with the evidence, solar PV farm technologies will be the primary approach to delivering renewable energy generation in the Flintshire LDP area.

Appendix 1: Draft NDF Renewable Energy Priority Search Areas



Appendix 2: Flintshire REA Strategic and local constraints

Flintshire LDP Renewable Energy Assessment – First Stage Mapping

WIND OPPORTUNITIES FIRST DRAFT MAPPING STEPS

(assuming 80m to hub, 120m to blade tip turbine)

MAP 1- Unconstrained Wind Resource

MAP 2 – Statutory and Strategic Constraints

Constraint	Source	Buffer	Reason
Special Protection Area (SPA) <i>Dee Estuary – asked Ecologist re species foraging buffer</i>	Lle	Extent + 600m disturbance buffer as confirmed by NRW	Statutory constraint
Special Area of Conservation (SAC) <i>Dee Estuary / Halkyn Mountain / Alyn Valley Woods / Berwyn Mountains / Deeside & Buckley Newts</i>	Lle	Extent only (NB except Dee Estuary)	Statutory constraint
RAMSAR <i>Dee Estuary</i>	Lle	Extent + 600m disturbance buffer as confirmed by NRW	Statutory constraint
SSSI	Lle	Extent only	Statutory constraint
AONB (Clwydian Range & Dee Valley)	Protected Landscapes / Lle	Extent + 7km (NB aligns with Toolkit and Wrexham REA)	Protected Landscape / PPW
National Nature Reserves		Extent only	Statutory constraint
Registered Parks and Gardens	Lle	Extent only	PPW
Scheduled Monuments	Lle	Extent + 500m if residential Extent + turbine blade tip height & 10% if tourism asset Otherwise extent only	Statutory constraint
Listed Buildings	CADW	Extent only	Statutory constraint
Deep Peat	FCC	Extent only	PPW

CAA Airport Safeguarding Zone <i>e.g. Broughton</i>	CAA	Extent only	UK Strategic Constraint
MOD “red” and “amber” military low flying zones	DIO	Extent only	UK Strategic Constraint
NATS air traffic control safeguarded area inc military aerodrome traffic zones	NATS	Extent only based on appropriate turbine height	UK Strategic Constraint
Restricted Airspace	CAA	Extent only	UK Strategic Constraint
Aerodrome Locations	CAA	5km radius	UK Strategic Constraint – CAA guidance
Infrastructure Topple distances (Trunk Roads, Primary “A” roads and Secondary “B” Roads, Railways)	OS Strategi	Turbine blade tip height +10%	Strategic Constraint / Toolkit
Turbine gearbox noise	LLPG	500m buffer around all dwellings / settlement boundaries	Toolkit
Watercourses Lakes, canals, primary rivers, secondary rivers, minor rivers	OS strategi	Extent only	Toolkit
Ancient Woodland <i>Rare habitat (PPW10)</i>	Lle	Extent only	PPW
Broadleaved Woodland	National Forest Inventory	Extent only	Toolkit
BMV agricultural land grades 1, 2, 3a	Lle	Extent only	PPW / TAN6 / Toolkit (loss of 0.2 sq km either in single development or cumulatively)
Tan 8 SSA	WG	Extent + 7km	TAN 8 DNS inc para 8.4 to acknowledge acceptance of significant landscape character change immediately adjacent in terms of DNS
National Parks	Lle	Extent + 7km buffer	Protected Landscape / PPW duty to have regard to purpose of protected landscape

MAP 3 Remaining Wind Resource after Applying Statutory & Strategic Constraints (for comparison with forthcoming NDF)

MAP 4 – Local Constraints

Constraint	Source	Buffer	Reason
Local Nature Reserves	FCC	Extent only	PPW / TAN5 - Designated by LAs under the National Parks and Access to the Countryside Act 1949.
Country Parks <i>Waen y Llyn (Hope Mountain) / Moel Fammau / Loggerheads</i>	FCC	Extent only	TAN5 Designated by LAs under Countryside Act 1968
Regionally Important Geological Sites (RIGS)	FCC / Lle	Extent only	PPW / TAN5 constraint
Wildlife Sites (Non- Statutory Sites of Importance for Nature Conservation)	FCC	Extent only	PPW / TAN5 constraint
Registered Landscapes of Special Historic Interest (ASIDOHL)	CADW	Extent only	PPW constraint
Buildings of Local Interest	FCC	Extent only	Do not include
Conservation Areas	FCC	Extent only (NB will only be within settlement boundaries)	LPA designated under Civic Amenities Act 1967 & Planning (Listed Buildings and Conservation Areas) Act 1990
Other woodlands	OS Open Map - Local	Extent only	
Existing consented / operational windfarms >5MW installed capacity	FCC and surrounding authorities	Extent + 7km buffer to align with Toolkit wrt to cumulative impact	Existing development

MAP 5 Remaining Wind Resource after Applying Statutory & Strategic Constraints and Local Constraints

PCC/ FCC/ AECOM Review Remaining Resource prior to Second Stage Mapping Components:

Grid Infrastructure

Landscape

Cumulative Impact

Flintshire LDP Renewable Energy Assessment – First Stage Mapping

SOLAR OPPORTUNITIES FIRST DRAFT MAPPING STEPS

MAP 1- Unconstrained Solar Resource

MAP 2 – Statutory and Strategic Constraints

Constraint	Source	Buffer	Reason
Special Protection Area (SPA) <i>Dee Estuary – asked Ecologist re species foraging buffer</i>	Lle	Extent only (agreed with NRW)	Statutory Constraint
Special Area of Conservation (SAC) <i>Dee Estuary / Halkyn Mountain / Alyn Valley Woods / Berwyn Mountains / Deeside & Buckley Newts</i>	Lle	Extent only	Statutory Constraint
RAMSAR <i>Dee Estuary</i>	Lle	Extent only	Statutory Constraint
SSSI	Lle	Extent only	Statutory Constraint
AONB (Clwydian Range & Dee Valley)	Protected Landscapes / Lle	Extent + 3.5km (aligns with Wrexham & Powys REA)	Protected Landscape / PPW duty to have regard to purpose of protected landscape

National Parks	Lle	Extent + 3.5km (aligns with Wrexham & Powys REA)	Protected Landscape / PPW duty to have regard to purpose of protected landscape
National Nature Reserves		Extent only	Statutory Constraint
Registered Parks and Gardens	Lle	Extent only	PPW
Scheduled Monuments	Lle	Extent only	Statutory Constraint
Listed Buildings	CADW	Extent only	Statutory Constraint
Deep Peat	FCC	Extent only	PPW
CAA Airport Safeguarding Zone (Glint and glare) <i>e.g. Broughton</i>	CAA	5km radius	UK Strategic Constraint – CAA guidance
Aerodrome Locations (Glint and glare)	CAA	5km radius	UK Strategic Constraint – CAA guidance
Infrastructure Glare and Glint distances (Trunk Roads, Primary “A” roads and Secondary “B” Roads, Railways)	OS Strategi	Extent only	FCC discussion - Do not include
Construction/maintenance noise (traffic, alarms, rattle)	LLPG	100-250m buffer around all dwellings / settlement boundaries- TO DISCUSS	FCC discussion –NO BUFFER
Watercourses Lakes, canals, primary rivers, secondary rivers, minor rivers	OS strategi	Extent only	Toolkit
Ancient Woodland <i>Rare habitat (PPW10)</i>	Lle	Extent only	PPW
Broadleaved Woodland	National Forest Inventory	Extent only	Toolkit
BMV agricultural land grades 1, 2, 3a	Lle	Extent only	PPW / TAN6 / Toolkit (loss of 0.2 sq km either in single development or cumulatively)
Existing Consented / operational solar farms >0.5MW installed capacity (1.2ha land area)	FCC and surrounding authorities	Extent only (+3.5km buffer for cumulative impact?)	Toolkit
SSA locations to avoid prejudicial conflicts with purpose of SSAs	WG	Extent only	TAN8
C1 / C2 Flood Zone	Lle	Extent only	PPW / TAN15 (vulnerable development)

MAP 3 Remaining Solar Resource after Applying Statutory & Strategic Constraints (for comparison with forthcoming NDF)

MAP 4 – Local Constraints

Constraint	Source	Buffer	Reason
Local Nature Reserves	FCC	Extent only	PPW / TAN5 - Designated by LAs under the National Parks and Access to the Countryside Act 1949.
Country Parks <i>Waen y Llyn (Hope Mountain) / Moel Fammau / Loggerheads</i>	FCC	Extent only	TAN5 Designated by LAs under Countryside Act 1968
Regionally Important Geological Sites (RIGS)	FCC / Lle	Extent only	PPW / TAN5 constraint
Wildlife Sites (Non- Statutory Sites of Importance for Nature Conservation)	FCC	Extent only	PPW / TAN5 constraint
Registered Landscapes of Special Historic Interest (ASIDOHL)	CADW	Extent only	PPW constraint
Buildings of Local Interest	FCC	Extent only	FCC Discussion - Do not include
Conservation Areas	FCC	Extent only (NB will only be within settlement boundaries)	LPA designated under Civic Amenities Act 1967 & Planning (Listed Buildings and Conservation Areas) Act 1990
Other woodlands	OS Open Map - Local	Extent only	
Existing consented / operational solar farms	FCC and surrounding authorities	Extent only	Existing development

MAP 5 Remaining Solar Resource after Applying Statutory & Strategic Constraints and Local Constraints

PCC/ FCC/ AECOM Review Remaining Resource prior to Second Stage Mapping Components:

Grid Infrastructure

Landscape

Cumulative Impact

Appendix 3: URL links to Flintshire REA output maps

Wind:

[Map W1 unconstrained resource](#)

[Map W2 statutory and strategic constraints](#)

[Map W3 remaining least constrained resource after strategic constraints applied](#)

Solar PV:

[Map S1 unconstrained resource](#)

[Map S2 statutory and strategic constraints](#)

[Map S3 remaining least constrained resource after strategic constraints applied](#)

[Map S4 local constraints](#)

[Map S5 remaining least constrained resource after applying all constraints](#)

[Map S5a Indicative Local Search Areas](#)