Monmouthshire Replacement Local Development Plan

2018-2033

Renewable and Low Carbon Energy Background Paper

October 2024

monmouthshire
sir fynwy

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Renewable and Low Carbon Energy

1. Introduction

1.1. This paper is one of a series produced by Monmouthshire County Council (MCC) as part of the evidence base for the Replacement Local Development Plan (RLDP) which covers the period 2018-2033. The purpose of the paper is to provide further information on the policies relating to renewable energy generation contained within the RLDP. It sets out details of the background evidence, much of which is set out in stand-alone reports. This paper provides references to these reports which are attached as appendices to avoid duplication and repetition. It reflects the position at the date of publication and may be subject to update and revision as the RLDP progresses through the plan preparation process.

2. Planning Policy Context

Future Wales: The National Plan 2040

2.1. Future Wales (FW) was published in February 2021 and is the National Development Framework for Wales. It recognises that Wales has significant opportunities to generate renewable energy and notes that Welsh Government is committed to maximising this potential. The policy framework focuses on proposals for large-scale energy developments, which are classified as Developments of National Significance (DNS) and are determined by Welsh Ministers. Policies 17 and 18 of FW contain strategic spatial and detailed criteria-based policies respectively that should be considered in the determination of applications for DNS proposals. It identifies pre-assessed areas for wind energy and district heat network priority areas within Wales. Neither of which are identified in Monmouthshire.

Planning Policy Wales 12 (PPW12) February 2024

2.2. PPW12 sets out Welsh Government's policy aspirations for energy through an energy hierarchy. Reducing energy demand and increasing energy efficiency, through location and design of new development sit at the top of the hierarchy, followed by renewable energy generation. Minimising carbon impact of other energy generation followed by minimising extraction of carbon intensive energy materials sit at the bottom of the hierarchy.

2.3. The Welsh Government has set targets for the generation of renewable energy:

- For Wales the generate 70% of its electricity consumption form renewable energy by 2030;
- For one Gigawatt of renewable energy capacity in Wales to be locally owned by 2030, increasing to 1.5GW by 2035; and
- For new energy projects to have at least an element of local ownership.

2.4. PPW recognises that the planning system has an active role to help ensure the delivery of these targets, in terms of new renewable energy generating capacity and the promotion of energy efficiency measures in buildings.

Welsh Government's Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners (Sept 2015)

2.5. To ensure the LPA's role is fulfilled in the delivery of targets, PPW12 places a requirement of planning authorities to develop an evidence base to inform the development of renewable and low carbon energy policies. The Welsh Government's Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners (Sept 2015) is advocated within PPW12 as an acceptable methodology for developing an evidence base to inform spatially based renewable energy policies and allocations for inclusion in the RLDP.

Local Policy Framework

2.6. In May 2024 the Council published its Climate and Nature Emergency Strategy to update and combine previously published strategies (Climate Emergency in 2019, broadened to incorporate nature recovery in 2021 and the Motion for Rivers and Ocean declared in 2022), and better reflect the Community and Corporate Plan. The updated, overarching strategy is underpinned by four work streams and action plans: Council Emissions, Nature Recovery, Rivers and Oceans and Communities and Climate.

2.7. The Council is in the process of preparing a Local Area Energy Plan (LAEP) which considers the whole energy system in the County and the potential ways to move towards a net zero carbon energy system. As part of the RLDP evidence base, the Carbon Trust noted some important context to understanding the two processes and differences that might emerge. They note that 'unlike the renewable energy targets proposed in the RLDP, which should be seen as ambitious but achievable, the LAEP optimisation models are theoretical and show what a future system could look like. Due to the vast number of variables and assumptions in the LAEP, MCC should not consider the renewable energy generation results from the LAEP as fixed targets. Instead, the LAEP outputs should support MCC in identifying key opportunities and barriers on the journey to Net Zero'. In this respect, the LAEP is a broader piece of work than the RLDP evidence base which specifically addresses land use requirements set out in PPW12. However, the two are linked and dialogue will continue to ensure the two align, where appropriate.

3. Developing an Evidence Base

Monmouthshire's Renewable and Low Carbon Energy Assessment (RLCEA) October 2020

3.1. Following the methodology set out in Welsh Government's toolkit noted above, the Monmouthshire Renewable and Low Carbon Energy Assessment (RLCEA) was finalised in October 2020 and assesses the potential renewable energy resource within the County (excluding BBNP) from the following technologies:

- Wind Energy
- Ground mounted solar photovoltaics (PV)
- Biomass energy
- Energy from waste/anaerobic digestion
- Hydropower energy
- Roof top solar photovoltaics (PV)
- Heat pumps

3.2. Full details of the assessment can be found in the main report or a summary version in the non-technical report. Both can be viewed on the Council's website at the following location: https://www.monmouthshire.gov.uk/planning-policy/development-of-an-evidence-base/

3.3. The RLCEA concludes that Monmouthshire has a theoretical resource to meet/offset approximately three times' its current energy[1] needs with renewable/low carbon energy generated within the county. In practice, the opportunities may be restricted by local and national energy infrastructure (grid capacity), competition with other land uses and issues such as landscape impact.

3.4. The assessment sets out that there is a very high solar resource potential in the county and limited potential for wind and heat networks. Provisional geographical areas of less constrained land for ground mounted solar / onshore wind developments that may be suitable to inform the designation of Local Search Areas (LSAs) for solar and wind development have been identified in the assessment, along with a series of scenarios to help establish potential renewable energy targets. Several policy recommendations relating to development design and energy efficiency measures are also set out.

3.5. The findings of the main report provided the foundations for working towards establishing the RLDP's approach to identifying Local Search Areas and Local Renewable Energy Targets. In accordance with the Toolkit, targeted interviews were undertaken with a few key stakeholders, followed by two workshops to discuss the options available, and proposed policy approach in the RLDP.

Targeted Interviews – December 2023

3.6. To help inform potential policy options, the Toolkit recommends undertaking targeted interviews to gain feedback from industry and key stakeholders to add to the evidence base. Four interviews were conducted by the Carbon Trust during December 2023 with representatives from the following organisations:

- Welsh Government – Planning Policy Branch
- Welsh Government – Landscapes, Nature and Forestry Division
- National Grid Electricity Distribution (NGED)
- Protium Green Solutions

3.7. A briefing note was circulated to the interviewees in advance of the interviews to help provide some background context and set out the different policy approaches that could be considered. A copy of the briefing note is attached at Appendix 1 and the Stakeholder Engagement report prepared by the Carbon Trust is attached at Appendix 2.

Stakeholder Workshops – February 2024

3.8. Following consideration of the interview feedback, the policy approach to Local Search Areas and Renewable Energy Targets was refined further with the proposed RLDP approach put to stakeholders during two workshops, one for interested stakeholders and the second with Members of MCC. A briefing note setting out the proposed approach to the RLDP policies and to help inform discussion was circulated in advance of the workshops. The stakeholder briefing note is attached at Appendix 3 and the Member briefing Note at Appendix 4. A Stakeholder Engagement Report,

[1] 2017 – the latest published data when preparing the study

prepared by the Carbon Trust, setting out the key findings of both workshops is attached at Appendix 5.

4. RLDP Policy Approach

4.1. The findings of the main RLCEA Report, the targeted interviews and stakeholder workshops have helped shape the policy approach taken in the RLDP towards Local Search Areas and Renewable Energy Generation Targets.

Local Search Areas

4.2. Full details of the options considered with regards to Monmouthshire's potential to allocate Local Search Areas are set out in the Briefing Notes and Engagement Report contained in Appendices 1- 5. In summary, the RLDP does not allocate Local Search Areas for Wind due to the limited resource potential identified. With regards to solar, the RLDP does not allocate Local Search Areas reflecting the prevalence of high-quality agricultural land in the County and Welsh Government's policy position on protecting Best and Most Versatile agricultural land. Proposals for renewable energy generation schemes of less than 10MW will be considered on a case-by-case basis having regard to national planning policy and the requirements of criteria-based policy CC4 and other relevant policies of the Plan.

Local Renewable and Low Carbon Energy Generation Targets

4.3. Again, the evidence base behind the RLDP approach to renewable energy generation targets can be found in the Briefing Notes and Engagement Reports contained in Appendix 1-5 and are therefore not repeated here. In summary, the RLDP bases its renewable energy targets on a percentage of resource available (excluding BMV land) in the County for ground mounted solar and onshore wind consistent with national planning policy. Roof top solar PV and heat pumps targets are however, aligned with the RLDP growth levels. High and low target ranges have also been incorporated to allow for flexibility, constraints and suitability factors.

Unimplemented Renewable Energy Schemes

4.4. The resource-based targets for solar and wind energy include current installed capacity. To help with the ongoing monitoring of the targets the following planning permissions were not installed/implemented at the time of preparing the main RLCEA report and may therefore contribute to the targets if implemented. This will be kept under review until formal monitoring procedures are implemented.

Table 1: Unimplemented Renewable Energy Permissions

App Ref	Site Name	Description	Status	MW
DC/2013/00925	Buckwell Farm	Solar farm	Extant planning permission, but not operational.	8.1 MW
DM/2019/00157	Court Farm, Clear Water Tan Reservoir	Floating solar array	Not implemented – approved 21/05/2019	2.8MW

DM/2022/00137 (DNS:3252305)	Great House Farm, Penpergwm	Solar farm (DNS application)	Approved, but not implemented	32MW

Renewable and Low Carbon Energy Candidate Sites/Allocations

4.5. As part of the Second Call for Candidate Sites, MCC received four renewable and low carbon energy candidate sites, all of which related to solar power. The candidate sites have been assessed as part of the wider candidate site assessment process. This concluded that three of the sites are not suitable for allocation and one site is suitable for allocation as a potential solar scheme, subject to detailed considerations. Table 2 provides details of the four sites:

Table 2: Renewable and Low Carbon Energy Candidate Sites

Candidate Site Ref	Site Name	Site Area (ha)	MW potential	Comments
CS0069	Raglan Enterprise Park, Raglan	16ha	Up to 9 MW	It is also proposed to identify approximately 16ha of land to the west of the existing Raglan Enterprise Park as having potential for a ground mounted solar development, subject to detailed planning considerations. While the site is Grade 3a BMV land, it performs best in this respect when compared to the other solar related candidate site submissions. Allocation of the site provides an opportunity to contribute to local and national renewable energy targets and provides an opportunity to develop an off-grid energy source to the adjoining existing and proposed employment allocation at Raglan Enterprise Park.
CS0066	Bridge View Farm, Portskewett	20.58ha	Up to 10 MW	The site is not being progressed as an allocation due to concerns raised in relation to the site's location on the Gwent Levels. In addition, the site is wholly Grade 2 BMV land, with the Minster for Climate Change letter of 1st March 2022 noting that significant weight should be given to protecting BMV land where solar arrays are proposed and the availability of more suitable alternatives.
CS0229	Land Opposite Chepstow	13.72ha	No details specified	The solar element is not being progressed as an allocation due to concerns raised in relation to the site's proximity to the

	Garden Centre			Gwent Levels Historic Landscape. Ecology concerns have also raised in relation to the presence of a SINC on site, as well as flood risk issues on the eastern edge of the site. In addition, the site is predominantly Grade 2 BMV land, with the Minster for Climate Change letter of 1st March 2022 noting that significant weight should be given to protecting BMV land where solar arrays are proposed and the availability of more suitable alternatives.
CS0222	Land at Penarth Farm	8.6ha	3.65MW	The site is not being progressed as an allocation due to its location in the Wye Valley National Landscape (AONB) and PPW's policy position that the AONB designation should be afforded the highest protection. In addition, 67% of the site relates to Best and Most Versatile agricultural land, with the Minster for Climate Change letter of 1st March 2022 noting that significant weight should be given to protecting BMV land where solar arrays are proposed and the availability of more suitable alternatives.

RLCEA Site Allocation Design and Layout Recommendations and Strategic Sites Assessment

4.6. Section 10 of the main RLCEA sets out policy options for optimising the layout and design of developments as well as reducing energy demand and maximising the opportunities for roof-mounted solar. PPW12 notes at paragraph 5.8.5 that planning authorities should assess strategic sites to identify opportunities to require higher sustainable building standards, including zero carbon, in their development plan.

4.7. The Toolkit also suggests that local authorities consider the integration of renewable energy into strategic developments within the RLDP as part of the aim to reduce carbon emissions associated with new development. The Carbon Trust undertook a Strategic Site Assessment of the RLDP strategic sites with a view to establishing a high-level information base of the energy demand of the proposed sites and analysing the feasibility of meeting this demand with low carbon energy sources. Full details of the Strategic Sites Assessment are attached at Appendix 6.

4.8. Having regard to these findings, the RLDP incorporates the following policy framework:

- In line with MCC's commitment to providing net zero homes, Policy NZ1 sets a requirement for all new build residential development to be net zero carbon homes, including space heating demand limits, renewable energy generation on site and no connection to the gas grid.

- Strategic Policy S4 – Climate Change, sets out the policy requirements required to address climate change including reducing energy demand and promoting energy efficiency through the design of buildings, the development of renewable and low/zero carbon energy generation and storage on site and the co-location of uses.
- In addition to being built to net zero standards, Strategic Policy S8 – Site Allocation Placemaking Principles, sets a requirement for the RLDP residential allocations to include renewable energy generation technologies and low carbon heating systems.

Appendix 1 – Targeted Interviews Briefing Note

Monmouthshire Replacement Local Development Plan

Renewable and Low Carbon Energy Stakeholder Engagement Briefing Note

1. Introduction

1.1. The purpose of this stakeholder engagement is to seek views from targeted organisations on the potential to identify Local Search Areas (LSAs) and renewable energy generation targets within the Replacement Local Development Plan (RLDP).

1.2. Monmouthshire County Council (MCC) is in the process of producing a RLDP to set out land use policies and allocations covering the period 2018-2033. Within this context, the RLDP needs to address and provide for clean growth and the decarbonisation of energy in line with national and local policy aspirations.

Welsh Government

- **Environment (Wales) Act (2016)** – requirement to achieve an 100% reduction in carbon emissions by 2050 (Updated March 2021).
- In March 2021, Welsh Government announced a commitment to achieve a **Net Zero Wales by 2050** following a recommendation report by the Climate Change Committee (CCC).
- Welsh Government targets specifically related to **local energy generation and ownership**:
  - Wales to generate electricity to 70% of its consumption from renewable sources by 2030;
  - 1 GW of renewable electricity and heat capacity in Wales to be locally owned by 2030*; and
  - New energy projects to have at least an element of local ownership*.

Monmouthshire County Council

- In May 2019 MCC declared a Climate Emergency including a commitment to reduce its own carbon emissions to net zero by 2030. An updated Climate and Decarbonisation Strategy and Action Plan was published in November 2021, with strengthened emphasis on nature recovery in recognition of the nature emergency.
- Preparation of a Local Area Energy Plan is underway which will consider a whole energy system for Monmouthshire and set priorities and actions for working towards net zero.

*WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (WG – June 2022 - https://www.gov.wales/sites/default/files/publications/2022-06/guidance-local-and-shared-ownership-of-energy-projects-in-wales_0.pdf)

1.3. It is widely recognised that the planning system plays a key role in reducing carbon emissions and facilitating the infrastructure to generate renewable and low carbon sources of energy. Planning Policy Wales 11 (PPW11) (Feb 2021) provides Welsh Government national policy guidance and states "the planning system has an active role to ensure the delivery of targets, in terms of new renewable energy generating capacity and the promotion of energy efficient measures" (p. 5.7.15).

Developing an Evidence Base

1.4. To ensure this role is fulfilled, PPW11 places a requirement on planning authorities to develop an evidence base to inform the development of renewable and low carbon energy policies. The **Welsh Government's Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners** (Sept 2015)[1] is advocated within PPW11 as an acceptable methodology for developing an evidence base to inform spatially based renewable energy policies and allocations for inclusion within the RLDP.

1.5. As such, Monmouthshire County Council in conjunction with Blaenau Gwent, Newport City Council, Caerphilly County Borough Council and Torfaen County Borough Council, commissioned the Carbon Trust to undertake a suite of Renewable and Low Carbon Energy Assessments (RLCEA) in line with the Toolkit requirements. Individual assessments have been completed for each of the five authorities accompanied by an additional regional assessment to provide an overview and identify the potential for cross border opportunities.

Evidence to date

1.6. Monmouthshire's Renewable and Low Carbon Energy Assessment (RLCEA) was finalised in October 2020 and assesses the potential renewable energy resource within the county (excluding the BBNP) from the following technologies:

- Wind Energy
- Ground mounted solar photovoltaics (PV)
- Biomass energy
- Energy from waster/anaerobic digestion
- Hydropower energy
- Roof top solar photovoltaics (PV)
- Heat pumps

1.7. The study concludes that Monmouthshire has a theoretical resource to meet/offset approximately three times' its current[2] energy needs with renewable/low carbon energy generated within the county. In practice, the opportunities may be restricted by local and national energy infrastructure (grid capacity), competition with other land uses and issues such as landscape impact.

1.8. The results of the renewable energy assessment show that there is very high solar resource potential in the county and limited potential for wind and heat networks. Provisional geographical areas of less constrained land for ground mounted solar / onshore developments

[1]Practice Guidance: https://www.gov.wales/sites/default/files/publications/2018-09/renewable-energy-toolkit.pdf
[2] 2017 – the latest published data when preparing the study

that may be suitable to inform the designation of Local Search Areas[3] (LSAs) for solar and wind development have been identified in the assessment. Several policy recommendations are provided as well as suggestions for further action. The executive summary of the RLCEA is also provided for information.

1.9. This Stakeholder Engagement Briefing Note considers the provisional solar LSAs and outlines a few options in which the RLDP could progress. It also considers various pathways/scenarios which could be used to develop renewable energy targets for inclusion in the RLDP.

2. Consideration of Local Search Areas in Monmouthshire

2.1. Policy Option 3 of the Toolkit relates to the identification of suitable areas for stand-alone renewable energy development. The Toolkit notes under section E4.3, that "*a local authority should identify spatially, areas that may be particularly suitable for larger scale renewable energy development*" so that "*it sends an invitation to potential developers that the local authority is interested in seeing suitable development in those sites and that there is a greater likelihood of securing planning consent for applications in those areas*".

2.2. PPW11 confirms this approach, stating that "planning authorities should assess the opportunities for renewable and low carbon energy in the area, and use this evidence to establish spatial policies in their development plan which identify the most appropriate locations for development of energy developments below 10MW. There should be a presumption in favour of development in identified areas, including an acceptance of landscape change, with clear criteria-based policies setting out detailed locational issues to be considered at the planning application stage" (5.9.14).

Less Constrained Areas of Land for Wind and Solar

2.3. The RLCEA undertaken by the Carbon Trust identifies a number of provisional Local Search Areas determined by a high-level assessment of constraints and aerial imagery. Appendix 1 of the RLCEA provides details of the constraints applied to the search for wind and solar options. Further refinement was then undertaken by visual inspection of aerial imagery to remove inappropriate land uses and grouping areas to form clusters.

2.4. For potential solar and wind resource, the less constrained land was mapped using constraints listed in Appendix 1 of the RLCEA. These included wind speed and proximity to domestic properties in relation to wind and slope/aspect in relation to solar. Both technologies excluded environmental designations/landscape designations including Areas of Outstanding Natural Beauty (AONB), Special Area of Conservation (SAC) and Sites of Special Scientific Interest (SSSIs), heritage designations and infrastructure constraints such as proximity to railway tracks. Land was refined using a high-level visual inspection of aerial imagery to remove land appearing to be unsuitable and further removal of areas too small to host development of 0.5MW in the case of solar and exclusion of land within Development Advice Zones C1 and C2 flood risk areas. It should be noted that Best and Most Versatile (BMV) Agricultural Land has not been excluded at this point but did form part of the scoring methodology.

[3] Preferred, broad, geographical area for development for solar PV. Agreed LSAs will be identified in the RLDP.

Wind

2.5. The constraints assessment identifies just small areas of land in the study area as less constrained for wind developments. These are generally clustered in the most northerly part of the county and the most southerly part of the county. It is estimated this land could accommodate approximately 32 MW of wind capacity. This is considered a low resource capacity given the size of the study area.

Solar

2.6. At a high-level, a very large proportion of land within Monmouthshire is theoretically suitable for ground mounted solar PV development – see Figure 1. Although, it should be noted that it is unlikely that the full land area would be developed due to additional considerations including cumulative impact, landscape impact, allowance for hedgerows and woodland not included in the constraints assessment, grid capacity and competition with other land uses.

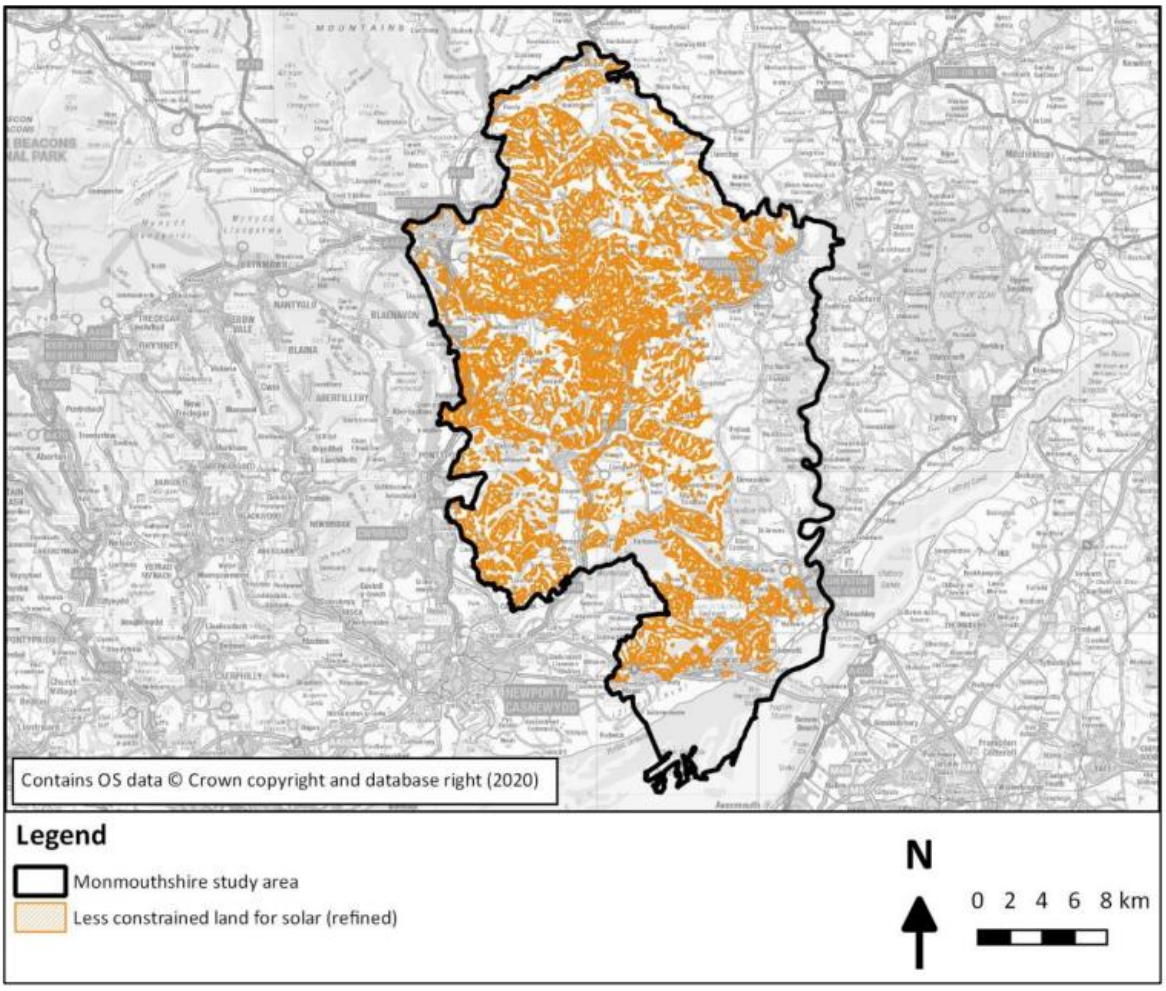


Figure 1: Areas of less constrained land for ground mounted solar PV

2.7. The large number and concentration of less constrained areas for ground mounted solar made it difficult to identify specific geographical groupings. Landmap Visual and Sensory Aspect Areas (NRW, 2020) have been used to help inform groupings, with neighbouring aspect areas amalgamated where similar landscape character types are identified, or similar rating values are assigned. Figure 2 identifies the less constrained land for solar by grouping.

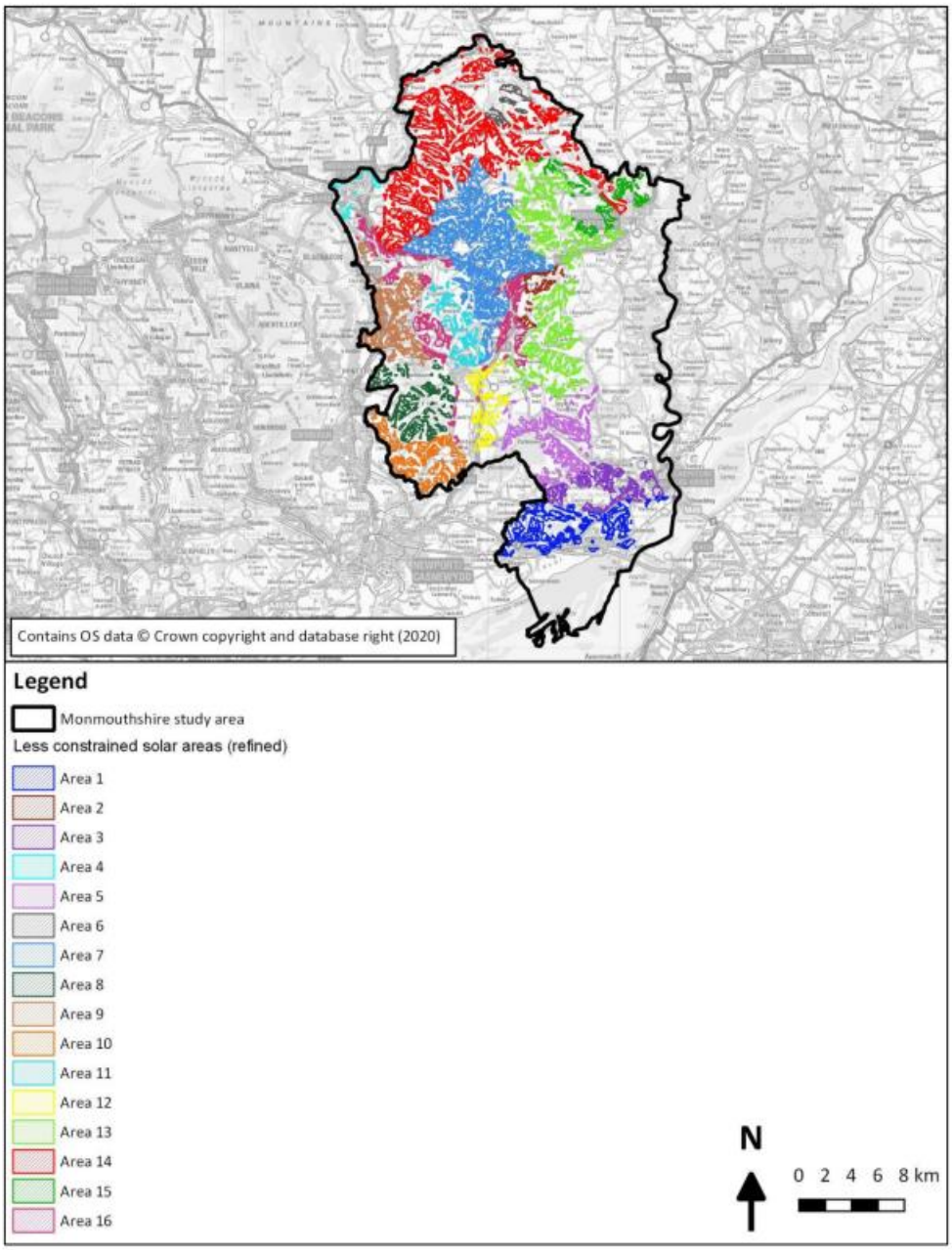


Figure 2: Less constrained land for solar (refined) and grouped by geographical area

Prioritisation Exercise

2.8. To support the identification of LSAs for solar, the less constrained areas identified in Figures 1 and 2 were evaluated in their clusters with respect to:

- Potential MW capacity
- Local landscape value – this is high level assessment and utilises the LANDMAP classifications and seeks to prioritise the areas identified with respect to their likely, local sensitivity, based on their designated landscape value.
- Cumulative impact – proximity to other consented or permitted solar developments.
- Grid constraints – based on Western Power Distribution (WPD) (now National Grid) network capacity map, which provides high-level information regarding the capacity available at grid supply points, bulk supply points and primary sub-stations.

- Agricultural land classification – Welsh Government's predictive Agricultural Land Classification map factored in at the prioritisation stage with higher grade BMV land scoring less than lower grade.

2.9. Each area was allocated a score of 1-6 (1 being most constrained and 6 least constrained) with respect to the criteria above (a number of sub-criteria made up local landscape value). The total scores for each area were then used to prioritise the areas.

Solar

2.10. The prioritisation exercise identified the following top three areas – 10 (orange area) (ranked 1st), 7 (light blue) and 13 (green) (both ranked 2nd) and area 1 (dark blue) (ranked 3rd) (see Figure 3), as the least constrained for ground mounted solar, with the Carbon Trust recommending that consideration is given to designating Local Search Areas which cover these areas. These are discussed in more detail later.

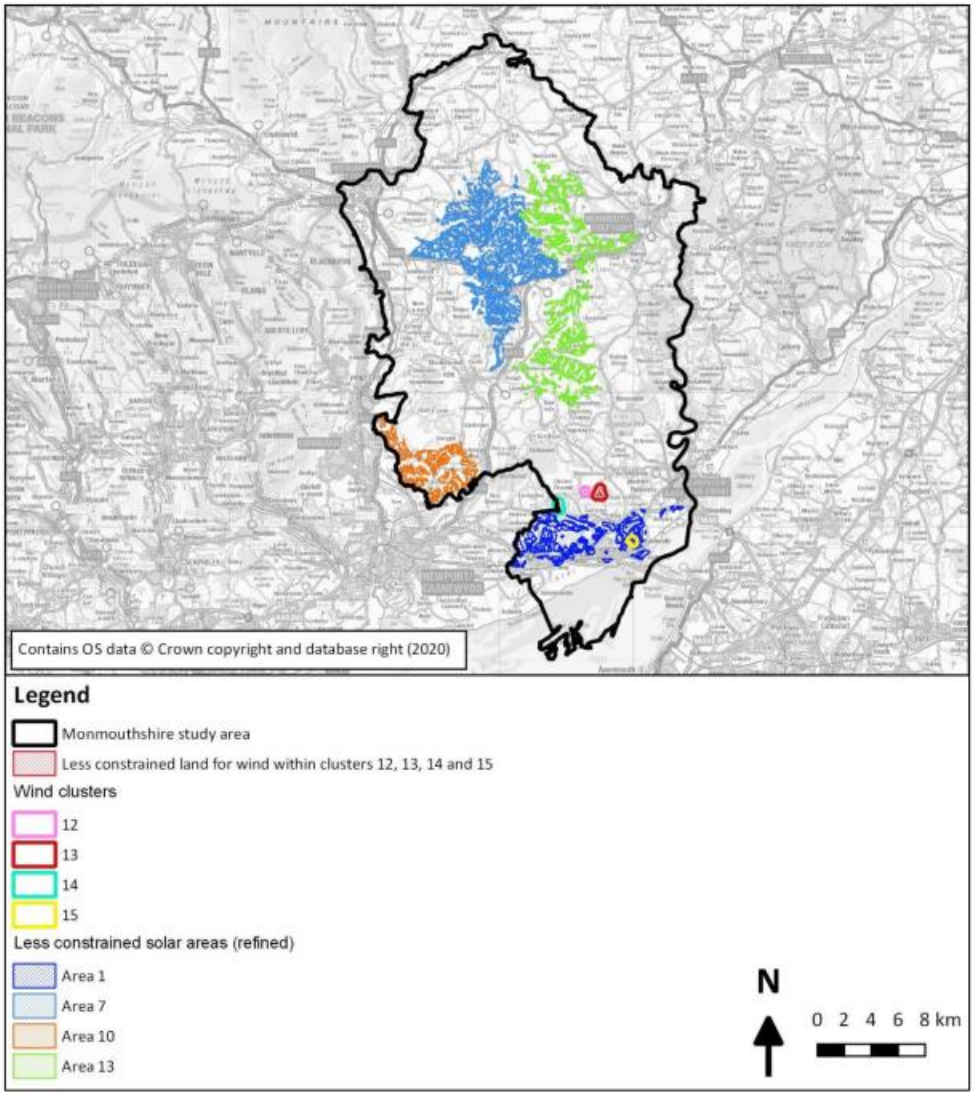


Figure 3: Top priority areas for wind and solar following scoring exercise

Wind

2.11. Due to the low resource capacity associated with the less constrained wind areas identified, the Carbon Trust recommended that either:

- Supportive planning policy is adopted for wind developments proposed anywhere in the county; **or**
- Broad geographical areas covering all or the majority of less constrained areas identified are designated as Local Search Areas for wind.

2.12. Having regard to the findings of the RLCEA and Future Wales, which does not identify any Pre-Assessed Areas for Wind within Monmouthshire, the **supportive planning policy option is considered the most appropriate way forward for the RLDP in relation to wind**.

Priority Solar Areas

2.13. In accordance with PPW11 there would be a presumption in favour of energy development within the LSAs designations, including an acceptance of landscape change, subject to further consideration at the planning application stage to determine acceptability in line with local and national policies. Further refinement of the priority solar areas has been undertaken to reflect the findings of a high-level landscape assessment and other considerations including potential RLDP allocations.

Landscape Sensitivity and Other Refinements of Local Search Areas

2.14. Whilst landscape sensitivity formed part of the prioritisation exercise through the application and scoring against Landmap classifications, the RLCEA does not determine whether an individual site would be acceptable or not from a landscape perspective. Given the large areas of land making up the priority areas further assessment work has been undertaken to provide a **high-level assessment** of landscape impact for the suggested areas. Full assessment details have been set out in a separate note which also includes some general design and ecological considerations and could potentially form the basis of Supplementary Planning Guidance (SPG) should the refined priority areas be allocated in the RLDP.

2.15. Additional refinements have been made to reflect a proposed Strategic Allocation at Caldicot East which had not been determined at the time of the Carbon Trust preparing the RLCEA.

2.16. The refined priority Local Search Areas are set out in Figures 4 - 8. These have also been adjusted to be displayed as broad areas as opposed to the multiple individual parcels of land included in the RLCEA. It should be noted that solar proposals within the refined areas, if allocated, would still be subject to detailed assessment and required to satisfy the requirements of a criteria-based policy including detailed landscape impact assessments including the associated infrastructure such as telegraph poles and cumulative impact considerations. Similarly, proposals outside of the refined areas may also be acceptable subject to detailed considerations.

2.17. These maps represent the first refinement of potential Local Search Areas to form the basis of discussion. Further refinements may be necessary to the areas to reflect the feedback from the stakeholder engagement and ongoing assessments. They are presented here to aide discussion.

Refined Potential Local Search Area – Area 1 (Ranked 3rd)

2.18. Area 1 is located to the south of the County, extending from the authority's boundary with Newport on the west to roughly Mathern on the east. It is positioned north of the M48 with the A48 forming the northern boundary. Within the wider area there are pockets of land excluded, where the land corresponds with a constraint highlighted to be excluded, such as SSSIs and ancient woodland. A notable area excluded is the woodland in the centre of the priority area. The RLCEA notes the areas as having the potential energy capacity of 607 MW (before refinement). The area is outside of the potential Future Wales Green Belt, which is north of the A48. The priority area does, however, overlap with a mineral limestone safeguarded area.

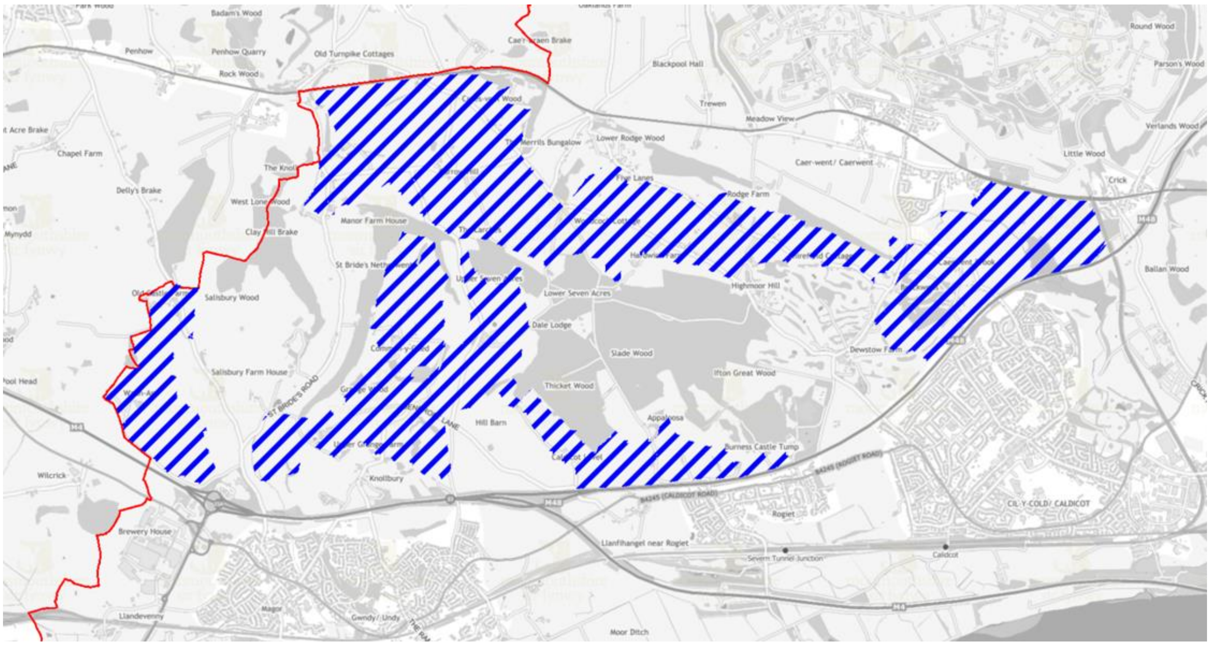


Figure 4 – Refined Potential Local Search Area – Area 1 **(subject to ongoing refinements)**

Refined Potential Local Search Area – Area 7 (Ranked joint 2nd)

2.19. Area 7 roughly covers a large area of land surrounding Raglan to the north, south and west. Notable pockets excluded include Raglan and Llanarth Conservation Areas. The predictive Agricultural Land Classification maps indicate that much of the land is grade 2 best and most versatile land. A large expanse of land is covered which the RLCEA notes as having the potential energy capacity of 1,739 MW (prior to refinement).

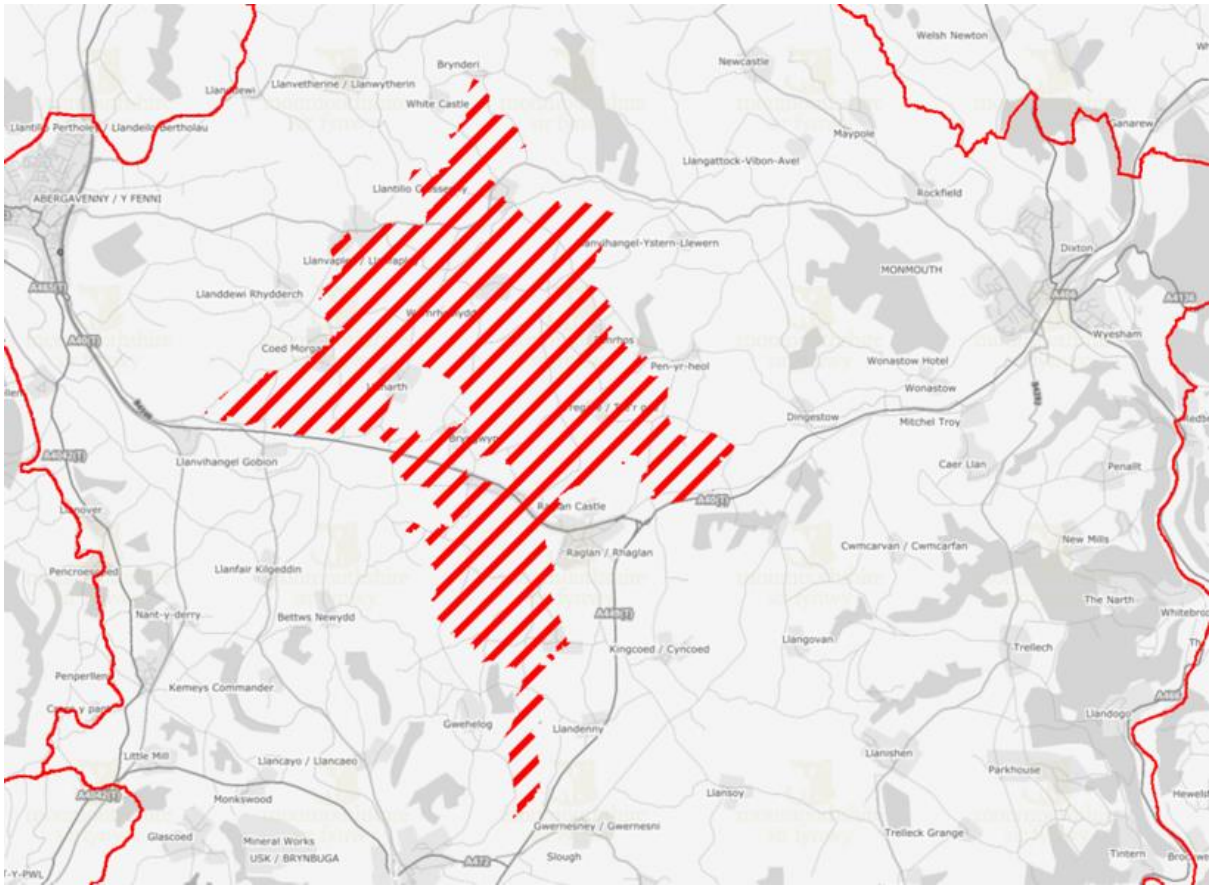


Figure 5 – Refined Potential Local Search Area – Area 7 (**subject to ongoing refinement)**

Refined Potential Local Search Area – Area 10 (Ranked 1st)

2.20. Area 10 roughly covers the land south of Llangybi to the Monmouthshire border with Newport and Torfaen. The predictive Agricultural Land Classification maps indicate that the land is predominantly covered by grades 2, 3b and 4 agricultural land. The RLCEA notes the land having the potential energy capacity of 351 MW (prior to refinement).

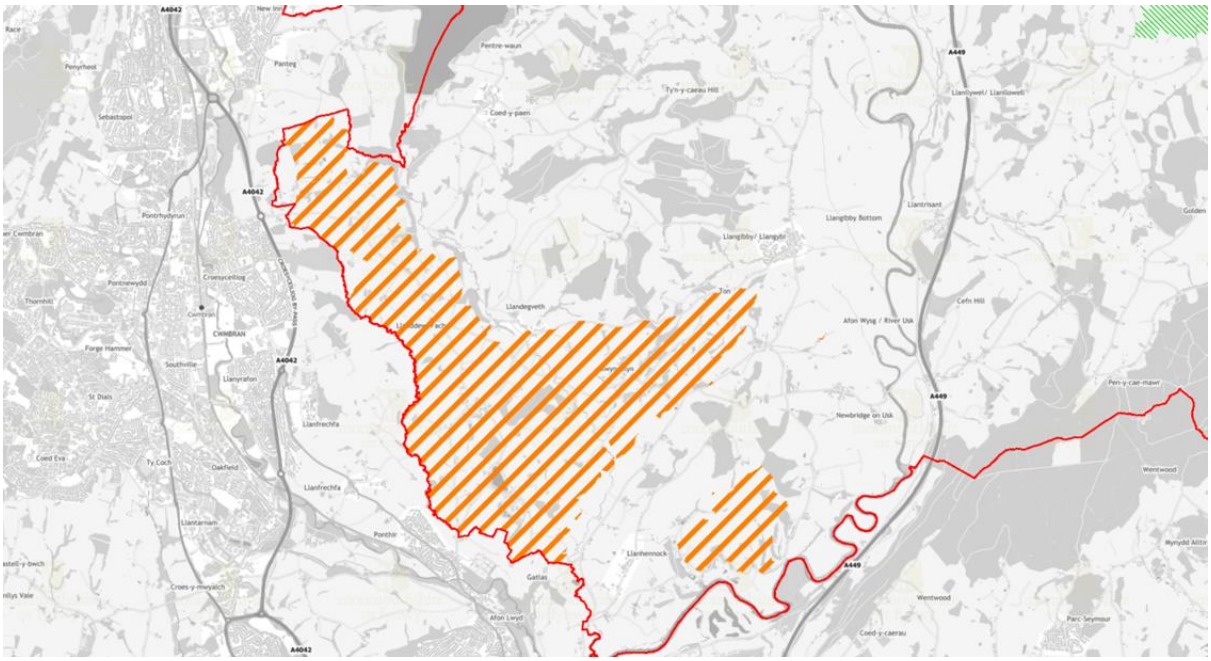


Figure 6 – Refined Potential Local Search Area – Area 10 (**subject to ongoing refinement)**

Refined Potential Local Search Area – Area 13 (Ranked joint 2nd)

2.21. West of Monmouth, south of the A40 extending south past Llansoy. As with the other areas, the priority area is made up of several parcels of land where different constraints have been excluded. The predictive Agricultural Land Classification maps indicate the land is mostly grades 2, 3a and 3b agricultural land. The RLCEA notes the land having the potential energy capacity of 785 MW (prior to refinement).

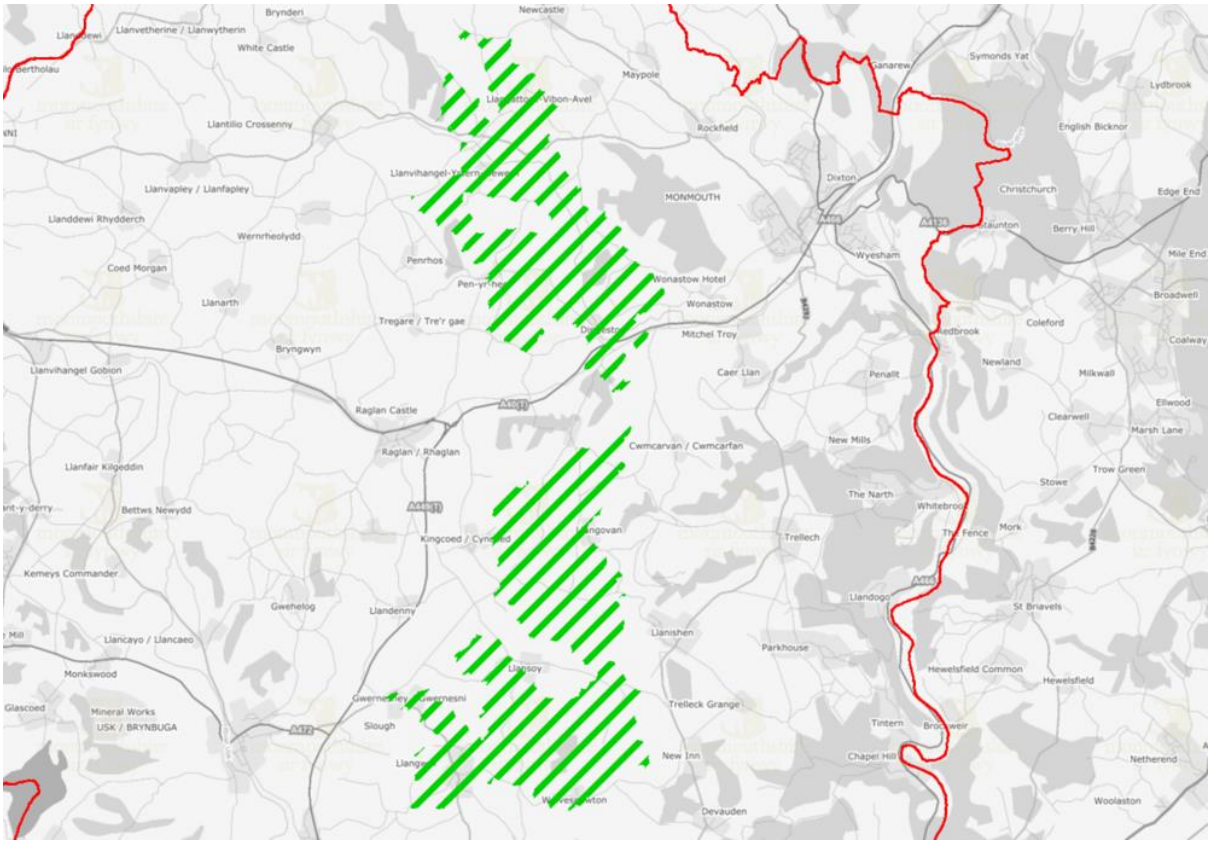


Figure 7 - Refined Potential Local Search Area – Area 13 **(subject to ongoing refinement)**

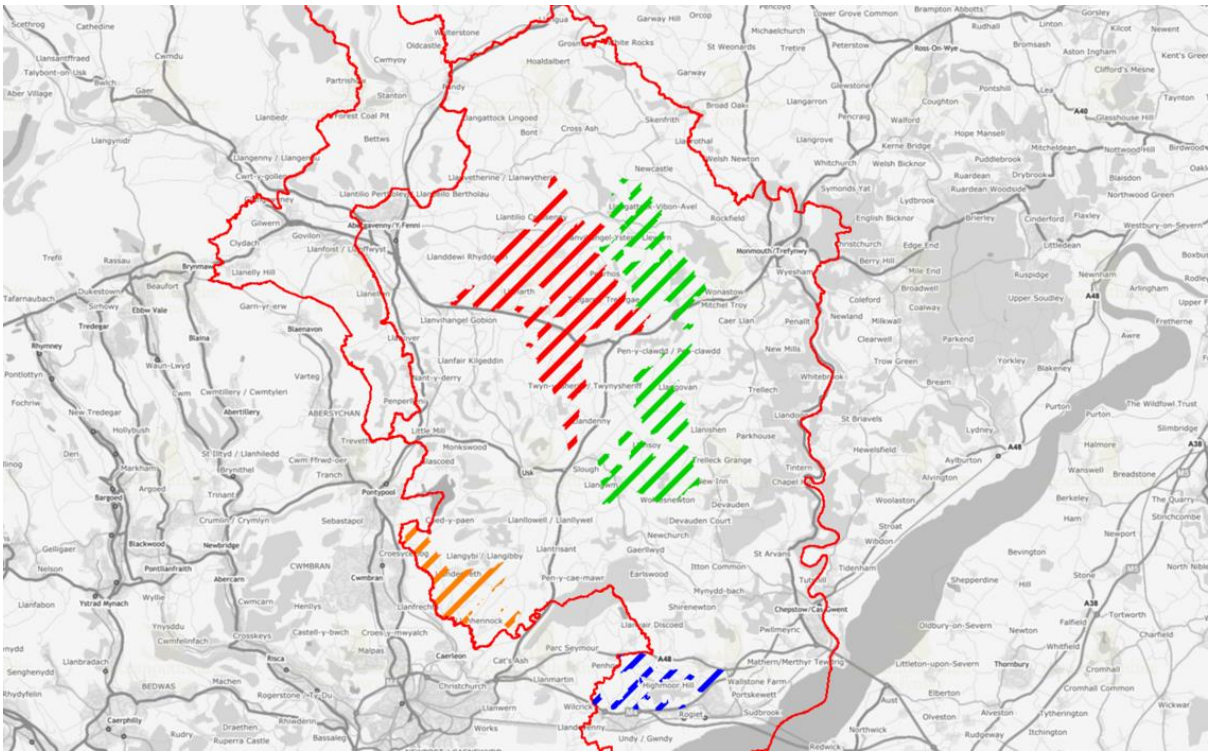


Figure 8 - Refined Potential Local Search Area – All Areas **(subject to ongoing refinement)**

Consultation Question 1: Are the revised potential Local Search Areas considered appropriate for allocation? Which area(s) are considered likely to provide the most opportunity for development?

Best and Most Versatile Land

2.22. The prioritisation exercise factored in agricultural land classifications as part of the scoring methodology with areas coinciding more prominently with best and most versatile agricultural land[4] scoring less than areas coinciding with more lower grade agricultural land, however, it was not excluded out right. This approach reflected appeal decisions at the time of writing the report, where solar farms had been considered temporary uses that did not sterilise the agricultural land for future use.

2.23. However, since the publication of the RLCEA, the Minister for Climate Change issued a letter (1st March 2022) clarifying that *"in accordance with Welsh Government policy outlined in PPW, where BMV land is identified within a proposed solar PV array development, considerable weight should be given to protecting such land from development, because of its special importance, and unless significant material considerations indicate otherwise it will be necessary to refuse permission."* It goes on to note *"that should solar PV array applications on BMV agricultural land come before the Department for Climate Change, the Department will object to the loss of BMV*

[4] The Agricultural Land Classification (ALC) system classifies land into five grades, with 1 being the best ad 5 being the worst. Grade 3 is subdivided into subgrades 3a and 3b. PPW 11 states that agricultural land of grades 1, 2 and 3a of the ALC system is the best and most versatile and should be conserved as a finite resource for the future.

agricultural land unless other significant material considerations outweigh the need to protect such land in accordance with Welsh Government policy and guidance." No guidance is given on what would constitute 'significant material considerations'.

2.24. In response to the letter, the Carbon Trust undertook an exercise where best and most versatile agricultural land was removed from the less constrained land for solar. The results are shown in Figure 9 and compared to the less constrained land for solar including BMV land in Figure 10. The exclusion of BMV reduces the amount of less constrained land for solar by approximately 80%. As Figure 9 illustrates the remaining land is dispersed across the county, making it difficult to suggest clear areas that could be designated as Local Search Areas.

2.25. PPW states at paragraph 5.9.14 that there should be a presumption in favour of development in identified areas designated in LDPs. However, given the Minister's letter and the weight afforded to protecting BMV agricultural land and the scale of BMV land within Monmouthshire, it is challenging to identify Local Search Areas with the level of certainty required to meet PPW's intention for the designations, i.e., presumption in favour of development. On this basis, a further option is to not identify Local Search Areas and deal with planning applications through the inclusion of a supportive criteria-based policy for solar developments proposed anywhere in the county, to allow a thorough assessment of BMV to be undertaken.

Consultation Question 2: Do not allocate Local Search Areas reflecting Welsh Government's policy position on protected Best and Most Versatile agricultural land, however, include a criteria-based policy for solar proposals to be assessed against?

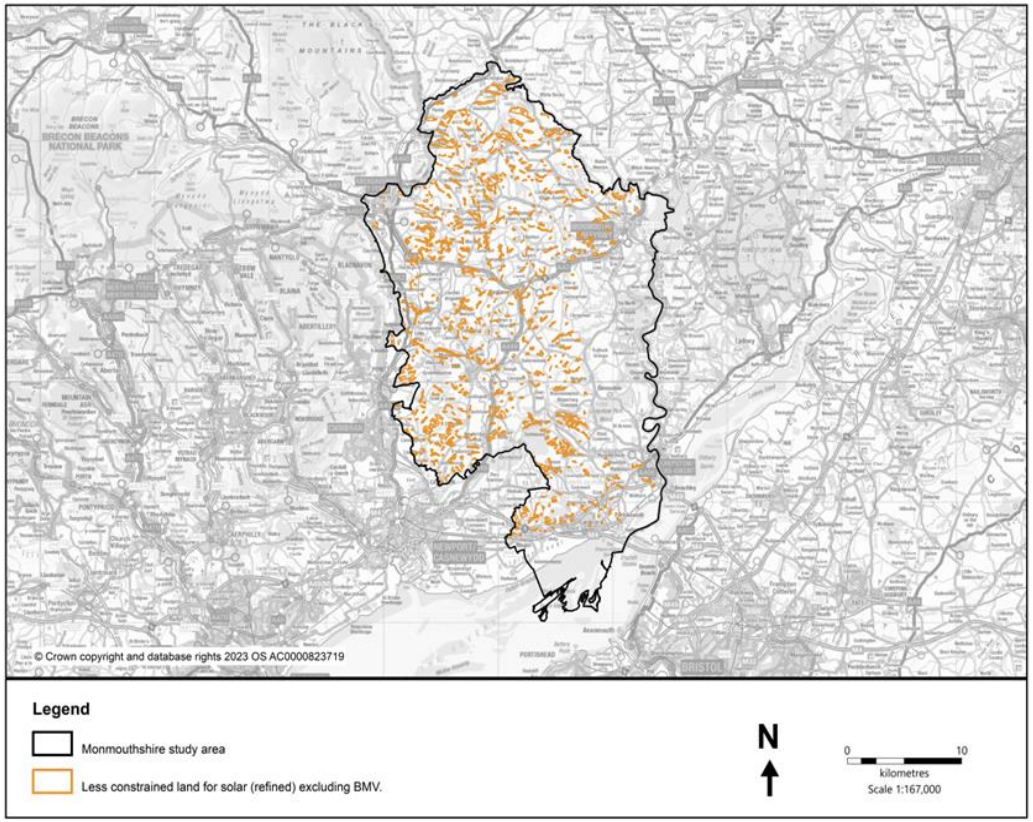


Figure 9: Less constrained land for solar with Best and Most Versatile Land excluded

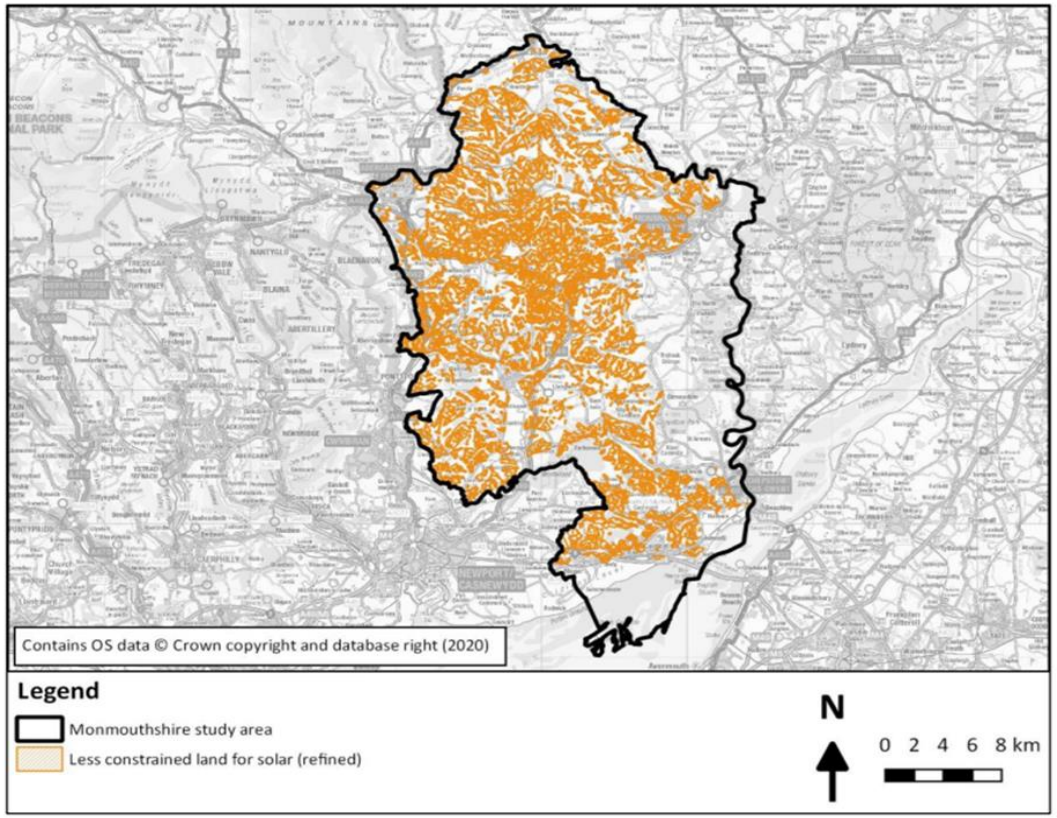


Figure 10: Less Constrained Land for solar including BMV land

Candidate Renewable Energy Sites

2.26. As part of the second Call for Candidate Sites to inform the RLDP, MCC received four renewable energy candidate sites all relating to solar. The candidate site assessment work is on-going, with allocations to be identified in the Deposit Plan. It is uncertain at this time if the sites will be allocated and therefore what their potential contribution to meeting renewable targets will be. However, information is set out in Table 1 to inform the discussions.

Table 1 – Summary of Candidate Renewable Energy Sites

Candidate Site Ref	Site Name	Site Promoter	Site Area	MW potential indicated by submission information	Comments:
CS0069	Raglan Enterprise Park	MCC	12.8ha (12.1ha for solar)	Up to 5 MW	• Partially within identified less constrained area, however not within the refined area. • Contains 100% grade 3a BMV agricultural land.
CS0066	Bridge View Farm, Portskwett	MCC	20.58ha	Up to 10MW	• Not within identified less constrained area. • Contains 100% grade 2 agricultural land. • Cadw Gwent Levels Registered Historic Landscape
CS0229	Land opposite Chepstow Garden Centre	Andrew Jones (submitted for tourism and solar farm)	13.72ha	No details given	• Not within identified less constrained area. • Contains mostly grade 2 with a small area of 3a agricultural land.
CS0222	Land at Penarth Farm	MCC	8.6ha	3.65MW	• Not within identified less constrained area. • 60% of site is grade 2, 16% grade 3a and 24% grade 3b agricultural land. • Within the AONB
Potential Totals			67.1 ha	18.65 MW	

2.27. A couple of notable planning applications or EIA scoping opinions have also been considered since the publication of the RLCEA:

- Penpergwm (east of Abergavenny) DNS application (ref: DNS/3252305) for a 32 MW solar farm – Approved but not implemented.

- Magor Brewery – EIA scoping direction for proposed DNS application for a solar and wind power facility including ground mounted solar, wind turbine, hydrogen electrolysers, hydrogen and energy storage and ancillary infrastructure and cabling – 18.8 MW from renewables – 15.3 MW from solar and 3.5 MW from wind – Scoping report issued by PEDW 13/09/2022.

3. Consideration of Scenarios and Targets

3.1. Having established an evidence base for a maximum theoretical resource within the RLCEA, PPW11 requires LPAs to develop targets for renewable energy generation which can be incorporated into Local Development Plan policies and monitoring over the life of the plan period.

3.2. PPW11 states that local authorities should identify challenging, but achievable targets for renewable energy in local/regional plans and strategies or development plans. In order to identify a measurable target, which can be assessed and monitored, it should be expressed as an absolute energy installed capacity figure. This should be calculated from the resource potential of the area and should not relate to a local need for energy.

3.3. Whilst the Toolkit was published in advance of the PPW requirement for targets to be developed and adopted, it does provide a Policy Option and sets out a methodology for approaching target setting as follows:
Step 1: Define scenarios.
Step 2: Prepare summary tables.
Step 3: Test and discuss with stakeholders.
Step 4: Refine and select preferred scenario.

3.4. The RLCEA sets out nine potential target scenarios for consideration. The Toolkit recommends consideration of two or three scenarios for testing with stakeholders, although three have been chosen as the basis for discussion in this initial Briefing Note.

3.5. Consideration of the potential resources within the County has informed the potential scenarios. A brief overview is set out below:

Table 2 – Summary of Potential Resources

Resource	Comments	Target Considerations
Onshore Wind	Small areas of land as being less constrained for wind development. Generally clustered in the most northerly and southerly part of the county. Low estimated wind speeds primary reason for the low potential resource.	Additional factors (e.g. aviation constraints, grid constraints, landscape value, etc.) affecting the potential to exploit development of wind farms would reduce the realistic energy generation from wind power, however it is considered that an appropriate target should be identified for inclusion in the RLDP and monitored accordingly.
Ground Mounted Solar Resource	Substantial ground mounted solar resource identified. Land is distributed throughout the County.	Unlikely that the full land area identified as being less constrained for solar PV would be developed due to additional considerations including cumulative impact, landscape impact, grid capacity and competing land uses, however, an

		appropriate target should be considered for inclusion within the RLDP.
Biomass Sustainable forestry and woodland management; growing of "woody" energy crops e.g. miscanthus & short rotation coppice willow	Assessment indicates that the study area has sufficient biomass resource to enable a large conventional (steam turbine) CHP plant to be developed and fuelled from local resources. To maximise the benefits of utilising the biomass with a large CHP plant, use of the heat generated should be maximised, by connecting it to a large heat load or district heat network. However, the RLCEA concludes that there is limited opportunity for heat networks within Monmouthshire. Could also be used to generate heat and power via advanced conversion technologies such as gasification, as the technology is more readily available for deployment at a smaller scale.	The assessment has indicated that the study area has sufficient biomass resource to enable a large conventional combined heat and power plant to be built and fuelled from local resources and therefore has potential to contribute to the targets. However, growing woody energy crops and managing local woodlands does not require planning consent. However, deployment of larger scale biomass boilers or combined heat and power plants would require planning consent. To encourage use of locally grown fuel, MCC could adopt a supportive stance towards infrastructure required for wood fuel processing plants.
Energy from Waste and Anaerobic Digestion	This covers municipal solid waste and commercial and industrial waste and organic waste (cattle & pig manure, poultry litter, food waste, sewage)	Due to the capacity of existing plants, and the scale of waste collected in Monmouthshire, and the existing waste contracts in place, it is considered unlikely that a traditional energy from waste plant would be developed in Monmouthshire in the plan period and should not be considered further. The resource potential from organic farm waste is relatively small, however, there may be potential for several smaller plants to develop or the resource could go towards supporting other AD facilities. Unlikely sewage sludge collected in MCC will be able to be processed in Monmouthshire within the RLDP plan period, therefore should not be considered further as a potential resource.
Hydropower	Whilst the scale of resource is relatively small, the data suggests there is some potential for hydropower proposals to emerge.	NRW provided comments to the Carbon Trust in 2019, which indicates that in some cases, particularly in lower catchment rivers and streams, reconnecting fragmented river ecosystems through barrier removal may be preferable to utilisation of existing barriers for hydropower generation. With this in mind it would be more advantageous to exploit hydropower resources in more upper catchment areas. There is considered to be some potential for hydropower schemes to be developed, however, the small capacity associated with this potential is

		considered insufficient to contribute to a target in their own right.
Roof Top PV (Building Integrated Renewables)	RLCEA calculates the maximum theoretical resource for roof mounted solar using existing building stock within the study area and the proposed number of dwellings put forward within the RLDP.	Large proportion of existing buildings, take up of roof mounted PV is dependent upon the individual building owners and is beyond the scope or influence of the RLDP policies. There is potential for changes to Building Regulations and RLDP policies to have a significant impact in relation to the installation of roof top PV within new buildings. In addition, MCC's policy commitment to be carbon neutral by 2030 could influence take up. However, while the total theoretical maximum resource is relatively substantial, the primary influence of planning policy relates only to new build constructed after adoption of the RLDP and therefore any target adopted should reflect this.
Heat Pumps (Ground Source and Air Source) (Low Carbon Heating)	RLCEA calculates the maximum theoretical resource for heat pumps using existing building stock with the study area and the proposed number of dwellings put forward within the RLDP.	The Carbon Trust note that heat is a particularly challenging sector to decarbonise and not all existing dwellings will be suitable for conversion to heat pump technology. Building owners again are key in whether existing buildings retrofit this low carbon option. It is considered that a target for heat pump installed capacity should relate primarily to new buildings constructed after the adoption of the RLDP and should acknowledge the newness of the technology to the general public. The Carbon Trust identifies that with regards to new development, a developer should be able to determine the most suitable low carbon heating solution (e.g. individual heat pumps, hydrogen, district heat network) for their development. An appropriate target should be developed for inclusion within an RLDP policy and monitored accordingly.

3.6. The Council is in the process of preparing a Local Area Energy Plan which considers the whole energy system in the county and the potential ways to move towards a net zero carbon energy system. This is broader than the work covered within the RLCEA which addresses specific land use requirements set out in the PPW11 for inclusion in in the RLDP. However, it is important that the two are consistent with each other. We will continue to monitor both processes to ensure the two align.

3.7. Using the above considerations and assessing the potential target scenarios set out in Chapter 10 of the RLCEA, three scenarios have been chosen for further consideration. However, details of the other scenarios are set out in Appendix 1. In all the scenarios, the estimated maximum theoretical resource (EMTR) and existing installed capacity have been taken from Table 43 – Potential Renewable Energy Targets for Consideration, of the RLCEA. An alternative estimated maximum theoretical resource is also included (shown in brackets), to reflect the reduction in potential resource that occurs if high value agricultural land is excluded.

3.8. In terms of indicative capacities, the following conversion factors have been used as per paragraph 10.2.12 of the RLCEA:

- 1 MW: 1.75 ha of land for ground mounted solar
- 2 MW: 1 wind turbine (based on the typical size in the assessment)

3.9. Capacity factors in calculating the per annum resource are taken from Table 54 of the Toolkit.

3.10. Three scenarios have been chosen as the focus of the consultation as these are derived from potential resources or current installation levels rather than demand based for consistency with PPW11's policy guidance. These are set out below:

Scenario 4: National Grid Community Renewable trends applied to current installation details.

Energy Technology	**Estimated Maximum Theoretical Resource (EMTR)**		**Current Installed Capacity**		**Target by 2033**		
					Installed Capacity		**Comment**
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
POWER							
Onshore wind	32	76,000	0.3	700	0.6 (low due to low existing capacity)	1,000	2 x 0.3 MW turbine 1.87% of EMTR
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	96	84,000	168 ha: 1.15% of EMTR 5% of EMTR excl. BMV
Roof Mounted PV	138	121,000	14	12,000	63	55,000	46% of EMTR (19,000 dwellings)
Hydro	1	4,000	0.2	500	0.2	600	20% of EMTR
AD (Power)	0-3	0-27,000	0.4	3,000	1	6,000	33% of maximum EMTR
Biomass	0-12	0-94,000	18	142,000	23 (greater than max potential)	182,000	(Exceeds EMTR)
		Total	**68**	**189,000**	**183**	**328,000**	
HEAT							

AD (heat)	5-16	22,000-71,000	0.2	800	0.3	1,000	1.9% - 6% of EMTR
Heat Pumps	503	883,000	4	6,000	97	171,000	19% of EMTR (19,000 dwellings)
Biomass Heat	20-92	89,000-243,000	25	79,000	48	125,000	52% of maximum EMTR
Total			**29**	**86,000**	**145**	**297,000**	
TOTAL POWER AND HEAT					**328**	**626,000**	

3.11. Scenario 4 uses the current installation capacity provided in the Renewable and Low Carbon Energy Assessment (October 2020) for the various technologies within Monmouthshire and applies growth rates commensurate with the 2019 National Grid ESO Future Energy Scenario Community Renewables pathway. The Community Renewables pathway anticipates high levels of decentralisation of energy generation, high uptake of low carbon heating solutions, high levels of energy efficiency improvements, rapid growth of storage capacity and a four-fold increase in wind powered generation by 2050 alongside the lowest annual energy demand scenario. Such a pathway will require substantial policy and other intervention at both the national and local level which is beyond the influence of the RLDP. It does, however, offer more realistic targets in some instances due to the low-level starting point in relation to a number of technologies such as wind or hydro power but would require a significant increase in others such as the number of roof mounted PV and heat pumps for these targets to be met and with the exception of new allocations would be beyond the remit of the RLDP.

Consultation Question 3: Should the above scenario based on current installation details, be considered as an approach to setting targets? If so, are the identified technologies and their individual targets appropriate and realistic?

Should the methodology be updated to reflect a more recent National Grid Scenario and current installations details?

Scenario 5: Target a certain proportion (X%) of Study Area's land to dedicate for renewable energy generation – based on 10% of land area, technology breakdown: 48% solar, 4% wind, 48% woody energy crops (all of the woodland potential is included in the target)

Energy Technology	Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033		
					Installed Capacity		Comment
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	

Onshore wind	32	76,000	0.3	700	28	66,000	14 x 2 MW turbines 88% of EMTR
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	2,021	1,770,000	3,537 ha 24% of EMTR
		Total Power	**35.3**	**31,700**	**2,049**	**1,837,000**	
Biomass Heat	20-92	89,000-243,000	25	79,000	75	196,000	3,537 ha 82% of the maximum EMTR
		Total Heat	**9.1**	**23.175**	**75**	**196,000**	
		Total Power and Heat			**2,123**	**2,032,000**	

3.12. This scenario approach uses land take of the study area to form its target and allows proportionate consideration of the land area of Monmouthshire. Note that the land area excludes the area of Monmouthshire that falls within the BBNP. The suggestion of 10% of land area to be utilised for renewable energy generation is made by the Carbon Trust and could be adjusted. Given the large geographical area, 10% of the whole study area results in an unrealistic target in the remaining plan period and raises concerns in terms of cumulative impact. The principle of the target does, however, provide a useful basis to establish a target, but with a refined percentage of land. As this scenario is determined by a proportion of the available land resource, it takes account of PPW11 policy guidance to take account of the available renewable energy resource.

Consultation Question 4: Should the above scenario based on the land available within Monmouthshire (excl. BBNP), be considered as an approach to setting targets? If so, is the overall target of 10% of land appropriate? Are the identified technologies and their individual targets appropriate and realistic?

Refined Scenario 6: Target a certain proportion (X%) of maximum theoretical capacity targeted - 5% of maximum theoretical capacity for solar resource and 10% of maximum theoretical capacity for other energy technologies

Energy Technology	Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033		
					Installed Capacity		Comment
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
POWER							
Onshore wind	32	76,000	0.3	700	3	7,000	2 x small turbines 10% of EMTR
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	414 (94)	362,000 (82,000)	725 ha (165 ha) 5% of EMTR
Roof Mounted PV	138	121,000	14	12,000	14	12,000	4,000 dwellings 10% of EMTR
Total Power			**68**	**189,000**	**431** **(111)**	**381,000** **(101,000)**	
HEAT							
AD	5-16	22,000-71,000	0.2	800	2	9,000	
Heat Pumps	503	883,000	4	6,000	50	88,000	
Biomass	20-92	89,000-243,000	25	79,000	9	16,000	
Total Heat			**29**	**86,000**	**61**	**113,000**	

TOTAL POWER & HEAT			**492 (172)**	**494,000 (214,000)**	

3.13. This scenario has been refined from the starting point of 50% of maximum theoretical capacity, which resulted in particularly ambitious and challenging targets, predominantly due to the high solar resource identified. The results of the 50% target are set out in Appendix 1. To take account of this a refined scenario of 5% EMTR of solar resource and 10% EMTR of other technologies has been prepared. The refined scenario is considered to provide an appropriate basis for establishing a target for the RLDP, reflecting competing land uses and other constraints such as landscape impact.

Consultation Question 5: Should the above scenario, based on a proportion of available renewable resource be considered further as an approach to setting targets? Are the suggested % of resources appropriate? Are the identified technologies and their individual targets appropriate and realistic?

Summary of Scenarios and Targets

3.14. Given the current installed capacity and the remaining plan period of the RLDP there will need to be a significant increase in the implementation of renewable energy proposals to see any of the above targets met. It is considered that a technology specific approach to target setting is most likely, to reflect the reality of circumstances in Monmouthshire, in particular the uncertainty of the weight to be given in relation to the protection of BMV land in proportion to WG's renewable energy targets.

Table 3 – Summary of Scenarios and Resulting Targets

Scenario	Target MW (Power and Heat)	Target MWh p.a.
Scenario 4: National Grid Community Renewable trends applied to current installation details	328	626,000
Scenario 5: Target a certain proportion (X%) of Study Area's land to dedicate for renewable energy generation – based on 10% of land area, technology breakdown: 48% solar, 4% wind, 48% woody energy crops (all of the woodland potential is included in the target)	2,123	2,032,000
Refined Scenario 6: Target a certain proportion (X%) of maximum theoretical capacity targeted - 5% of maximum theoretical capacity for solar resource and 10% of maximum theoretical capacity for other energy technologies.	492 (172)	494,000 (214,000)

4. Next Steps for Stakeholder Engagement

4.1. The Welsh Government Toolkit suggests that the findings of the RLCEA should be tested and discussed with stakeholders. In accordance with the Toolkit, the Council is seeking input into

the process of developing its renewable energy policies, including Local Search Areas and targets. This is planned to occur in two stages:

- Stage 1 – targeted stakeholder interviews from industry representatives undertaken by the Carbon Trust on behalf of the Council. The results of these interviews will feed into stage 2.
- Stage 2 – two workshops, one for Monmouthshire CC elected Members and a second for MCC Officers and other stakeholders. These workshops will be informed by an updated briefing note having regard to the results of the industry interviews. It is anticipated that these will be held early 2024.

4.2. The results of the workshops will be used to inform the targets and Local Search Areas that are incorporated into the Deposit RLDP.

5. Appendix 1 – Discounted Scenarios

5.1. Alternative targets included in the RLCEA are set out below for information. Comments are welcome on any of the targets discounted.

Scenario 1: Welsh Government (WG) Target of 70% of Electricity from Renewables by 2030
Alternatives/variations: alter demand estimations or consider a different percentage to the Welsh Government target.

Option 1a: based on 2033 Community Renewables local electricity demand estimation (based on 2033 BEIS estimation of electricity demand for Monmouthshire).

Energy Technology	Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033		
					Installed Capacity		Comment
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	304	266,304	532 ha of land: 3.7% of EMTR 16.1% of EMTR excl. BMV
Total:			**35**	**31,000**	**304**	**266,304**	

Option 1b: based on Wales' current (2017) national demand and MCC's proportion based on the population of Monmouthshire in comparison to the whole of Wales.

Energy Technology	Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033		
					Installed Capacity		Comment
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	356	311,856	623 ha: 4.3% of EMTR 18.9% of EMTR excl. BMV
Total:			**35.**	**31,000**	**356**	**311,856**	

Option 1c: based on Wales' current (2017) national demand and MCC's proportion based on the land area of the study are in comparison to the whole of Wales.

Energy Technology	Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033		
					Installed Capacity		Comment
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	422	369,672	739 ha: 5.1% of EMTR 22.4% of EMTR excl. BMV
Total:			**35**	**31,000**	**422**	**369,672**	

5.2. These scenarios take the Welsh Government 70% of electricity from renewables target as a starting point. It should be noted that this target allows an extra three years over the Welsh Government target to 2030. Given the existing levels of renewable energy generation, all three would represent a very ambitious target. The RLCEA report includes wind resource in the results of this scenario, however they have been removed as part of this refinement process to reflect paragraph 10.3.12 of the RLCEA report that notes that wind targets are greater than the maximum resource, and therefore represent unrealistic scenarios for Monmouthshire. These scenarios are also determined by demand forecasts which is in contradiction to the PPW to base targets on resource potential. For the reasons set out these targets are not considered to be viable options to pursue further.

Scenario 2: WG Target of 1 GW of locally owned[5] renewable energy by 2030

Scenario 2a: WG Target of 1 GW of locally owned renewable energy by 2030 based on proportion of Welsh population in Monmouthshire County (the locally owned MW would contribute to the overall MW)

Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033	
				Installed Capacity	
MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.
9,001-9,112	8,463,000-8,813,000	97	275,000	30	Depends on Technology

[5] WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (WG – June 2022 - https://www.gov.wales/sites/default/files/publications/2022-06/guidance-local-and-shared-ownership-of-energy-projects-in-wales_0.pdf)

Scenario 2b: WG Target of 1 GW of locally owned renewable energy by 2030 based on proportion of Wales' land area in the study area.

Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033 Installed Capacity	
MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.
9,001-9,112	8,463,000-8,813,000	97	275,000	36	Depends on Technology

5.3. There is a general appreciation for the economic benefit of locally owned power generation. Option 2a is demand based as it relates to the proportion of population in the County and option 2b relates to the available resource rather than demand.

Consultation Question 6: Should the RLDP include a local ownership target contributing to the overall target?

Scenario 3: Target a certain proportion (x%) of energy demand to be met by renewables: based on 80% of 2033 Community Renewables local electricity and heat demand estimation (energy for transport is not considered)

Energy Technology	Estimated Maximum Theoretical Resource (EMTR)		Current Installed Capacity		Target by 2033 Installed Capacity		Comment
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
POWER							
Onshore Wind	32	76,000	0.3	700	128	302,746	64 x 2 MW turbines: 300% increase on EMTR
Ground Mounted Solar (excl. BMV land)	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	347	303,972	521 ha: 4% of EMTR

							18.4% of EMTR excl. BMV
		Total:	**35.3**	**31,700**	**475**	**606,718**	
HEAT							
All	528-612	994,000-1,197,000	29	86,000	Depends on Technology	555,000	
HEAT & POWER							
		Total	**19**	**36,000**	**Depends on Technology**	**859,000**	

5.4. This scenario is based on the anticipated demand for electricity and heat at the end of the RLDP period (2033). Whilst the Toolkit provides for this type of target scenario, the approach has been superseded by PPW which requires the resource-based approach to target setting. Given the existing levels of renewable energy generation, this target would represent an ambitious target and unrealistic within the timescale, although lower than scenarios 5 and 6 presented in the briefing note. The Carbon Trust also note at paragraph 10.3.12 of the RLCEA report that wind examples provided in Table 43 (reflected above) are greater than the maximum resource, and therefore represent unrealistic scenarios for Monmouthshire.

Scenario 6: Target a certain proportion (X%) of maximum theoretical capacity targeted - 50% of maximum theoretical capacity.

Energy Technology	**Estimated Maximum Theoretical Resource (EMTR)**		**Current Installed Capacity**		**Target by 2033**		
					Installed Capacity		**Comment**
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
POWER							
Onshore wind	32	76,000	0.3	700	16	38,000	8 x 2 MW turbines 50% of EMTR
Ground Mounted Solar	8,279 (1,887)	7,252,000 (1,653,000)	35	31,000	4,149 (944)	3,626,000 (827,000)	7,261 ha (1,652 ha)

(excl. BMV land)							50% of EMTR
Roof Mounted PV	138	121,000	14	12,000	69	60,000	21,000 dwellings 50% of EMTR
Hydro	1	4,000	0.2	500	1	2,000	
AD (Power)	0-3	0-27,000	0.4	3,000	2	13,000	
Biomass (Power)	0-12	0-94,000	18	142,000	6	47,000	
		Total Power	**68**	**189,000**	**4,242** **(1,022)**	**3,787,000** **(987,000)**	
HEAT							
AD	5-16	22,000-71,000	0.2	800	8	36,000	
Heat Pumps	503	883,000	4	6,000	252	441,000	
Biomass	20-92	89,000-243,000	25	79,000	54	142,000	
		Total Heat	**29**	**86,000**	**314**	**620,000**	
		TOTAL POWER & HEAT			**4,556** **(1,336)**	**4,407,000** **(1,607,000)**	

5.5. A refined version of scenario 6 is discussed in the main body of the briefing note with a reduced percentage to 5% of the maximum theoretical capacity for solar and 10% of the maximum theoretical capacity for other technologies. The refined version is considered to offer a more realistic target compared to 50% of the maximum theoretical capacity, particularly regarding Monmouthshire's large theoretical solar resource. The original scenario 6 is included here for information but it is not considered to offer a realistic set of targets for inclusion in the RLDP.

Consultation Question 7: Should any of the above scenarios be considered further as an approach to setting targets?

Variation that could be considered: alter the percentage to target, or energy demand estimation upon which the target is based.

Consultation Question 8: Are there any other methods that should be considered to determine a target?

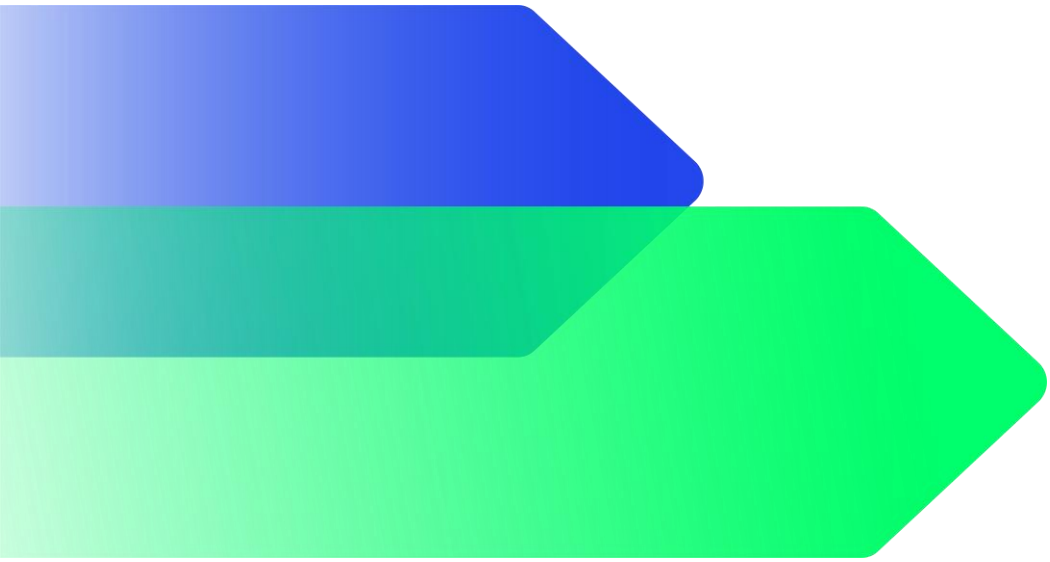
Appendix 2 – Stakeholder Engagement Report – Targeted Interviews

REPORT

Monmouthshire County Council: Renewable and Low Carbon Energy Planning Policy Stakeholder Engagement

Stage 1: Stakeholder Interviews

January 2024



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Acknowledgments

The Carbon Trust wrote this report based on an impartial analysis of primary and secondary sources, including expert interviews.

The Carbon Trust would like to thank everyone who has contributed their time and expertise during the preparation and completion of this report. Special thanks go to:

- **Susan Hall,** Monmouthshire County Council, Senior Planning Policy Officer
- **Gareth Hall**, Welsh Government, Planning Policy Branch
- **Gareth Dudley-Jones,** Welsh Government, Planning Policy Branch
- **Llinos Quelch,** Welsh Government, Planning Policy Branch
- **Richard Spear,** Welsh Government, Planning Policy Branch
- **James Cooke**, Welsh Government, Landscapes, Nature, and Forestry Division
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Table of Contents

1. Introduction

Monmouthshire County Council (MCC) is in the process of producing a Replacement Local Development Plan (RLDP) to set out land use policies covering the period 2018-2033. Within this context, the RLDP needs to address and provide planning support for clean growth and the decarbonisation of energy.

MCC's Renewable and Low Carbon Energy Assessment (RLCEA), produced by the Carbon Trust in 2020 (Carbon Trust, 2020) provided the evidence base for this work, and found that:

- Monmouthshire has a massive ground-mounted solar resource, totalling 8,279MW, and is the resource most likely to be deployed
- Monmouthshire has minimal wind resource, totalling approximately 32MW of available capacity
- the heat decarbonisation pathway is still uncertain

MCC can theoretically produce three times' its current energy demand and approximately 20 times its current electricity demand from renewable and low carbon sources. The practical resource that will be exploited is likely to be less than the resource identified due to grid capacity, competition with other land use and issues such as landscape impact and high-quality agricultural land. As part of the RLDP preparation activities, MCC are engaging with relevant stakeholders in order to test, review and refine the Renewable Energy Policy Options and Recommendations contained within the RLCEA. This engagement will inform renewable and low carbon energy policy and targets within the RLDP.

The stakeholder engagement is facilitated as a two-stage process:

1. Stakeholder interviews with key organisations involved in the local renewable energy sector
2. A series of workshops with a wider group of stakeholders to discuss the RLCEA findings and recommendations refined by the findings from the stakeholder interviews.

This document summarises the outcomes from stage 1, the stakeholder interviews, which were facilitated by Carbon Trust in November 2023.

NB the interviews reflect the position of the individual interviewees at a fixed point in time and may not remain consistent throughout the period of the RLDP. The interviewees do not necessarily reflect wider industry opinions.

2. Interview Aims and Structure

2.1. Interview Aims

The interviews specifically sought to gain feedback from industry to add to the evidence base and:

- Identify barriers to renewable energy/low carbon developments and potential ways in which planning policy can help to address these barriers.
- Help ensure that adopted targets are ambitious but achievable.

- Identify local search areas for solar which are supported by the industry in addition to wider council Local Development Plan objectives.

2.2. Interviewees

Representatives from the following organisations were interviewed:

- Welsh Government, Planning Policy Branch
- Welsh Government, Landscapes, Nature, and Forestry Division
- National Grid Electricity Distribution (NGED)
- Protium Green Solutions

Prior to the interviews, the interviewees were provided with Stakeholder Engagement Briefing Note prepared by MCC and a list of potential interview questions.

2.3. Interview Structure

The interviews were structured around four key themes:

1. Challenges and opportunities for renewable energy deployment
2. Allocation of local search areas
3. Target setting
4. Local ownership

Whilst key questions were posed to the interviewees, the structure of interview was dynamic to allow interviewees to raise points that they considered important and to enable the points raised to be further explored.

3. Interview Summaries

3.1. Interview 1: Welsh Government Planning Policy Branch

Context

Representatives from the Welsh Government (WG) Planning Policy Branch were interviewed on November 22nd, 2023, to understand the implications of MCC's RLDP on Welsh national policy. Alignment with Planning Policy Wales (Welsh Government, 2021a), Future Wales (Welsh Government, 2021b), and the recent amendments to Planning Policy Wales Chapter 6 (Welsh Government, 2023a; Welsh Government, 2023b) were addressed to understand WG's stance on the search area allocation approach and developing on best and most versatile (BMV) agricultural land.

Key Points

- Renewable energy opportunities will require a cohesive approach that considers planning risks from a local, regional, and national perspective. Local and national planning policies should support each other, rather than being seen as having competing goals.

- There has been no change to the policy on developing on BMV land and it should only be considered if developers can demonstrate that every step has been taken to minimise potential impact on agricultural land. They strongly recommend engaging with the Welsh Government Soils Team on the issue of BMV land and whether search areas can be identified despite the prevalence of predicted BMV land.

- In addition to the considerations of BMV land, MCC will need to incorporate the recently announced updates to Chapter 6 of PPW into their development plan and any designation of local search areas for renewables.

- The WG Planning Policy branch in principle support a planning-led approach to land development and thus are in support of local search areas as a starting point for site identification. Ideally, MCC's RLDP would first identify local search areas and subsequently apply a criteria-based approach that aligns with local and national policies and targets, however they acknowledge the difficulty of designating broad areas given the constraints.

- MCC's RLDP should guide the decision-making process as local knowledge and understanding is crucial. However, the RLDP should also consider national targets.

Interview Notes

Challenges and opportunities for renewable energy deployment

The Welsh Government (WG) planning policy team suggest that for MCC to maximise its renewable energy deployment potential, they **need to consider themselves within a wider national context, subject not only to local targets, but also national targets**. Both Planning Policy Wales (PPW) (Welsh Government, 2021a) and Future Wales Policy 17 (Welsh Government, 2021b) can provide support in adhering to the guidelines outlined in the national planning framework.

In addition to this, the WG planning policy team highlight **that local and national planning policy should not be seen as having competing goals** and shouldn't be interpreted by developers as "win or lose" policies.

With regards to the Ministerial guidance note on developing on BMV land published in March 2022 (Welsh Government, 2022a), the WG team clearly state that the letter did not represent a change in stance, rather a clarification to reinforce the already existing stance, as outlined in PPW. In the past, there have been occasions where WG have strongly objected to developments due to the BMV criteria, while in some cases they have helped support the development process. Understanding the potential implications of losing the agricultural land is crucial and will be a defining factor in whether projects are allowed to go ahead. For some proposals, the benefits of retaining land in agricultural use will outweigh its use for renewable energy. For some proposals there may be reasons that support a change of use, for example if plots are too small for agricultural purposes and could be considered for a change of land use, such as a ground-mounted solar PV development.

Each application will need to be assessed on a case-by-case basis, but developers should aim to do everything they can to adhere to the national policy guidelines. **Only in instances where it is demonstrated that every step has been taken to minimise potential impact will WG consider supporting the development process**. MCC are strongly encouraged to engage with the WG Soil team (see 3.2) on the issue of BMV land.

MCC need to review the recent changes to PPW Chapter 6 (Welsh Government, 2023a; Welsh Government, 2023b) as this doesn't appear to have been considered in the briefing note. Monmouthshire's environmental team have a good understanding of the changes to PPW Chapter 6 and assessing the net benefit of sites. They should be able to support the process for the majority of applications as they have strong in-house capacity and knowledge.

There should be some additional emphasis on looking at whole system networks, rather than considering individual sites and/or constraints as independent. As each LA is at a different point in developing the RLDPs, there **needs to be a joint, cohesive approach to planning which considers targets and risks at a regional level, not only a local level**.

One of the greatest challenges over the last few years has been securing grid connections for projects. The technical requirements that are needed to support the rollout of renewable projects must be considered. Deciding on whether to build a renewable project on site A vs. site B is more nuanced than simply looking at which land looks "better" (topography, BMV, flooding risk etc.). There is **real evidence now that some projects can't progress even in ideal locations due to grid constraints**, NGED and developers will agree with this.

Another challenge that must be considered is public perception. There is still significant pushback for wind turbines and grid upgrades (pylons) which can cause extensive delays, or in some instances, the project is abandoned altogether. Solar PV has less visual risk, but long-term impacts need to be considered more, especially for very large schemes. It is often the case that the allocation of local search areas by local authorities doesn't involve or get the attention of the local communities, meaning schemes in these areas can still suffer from opposition despite being in these screened areas.

The WG supports a plan-led approach as the best way to secure buy-in and provide long term certainty. Work is underway preparing new guidance for the Gwent Levels. MCC, Newport and Cardiff have been and will continue to be involved in this work. It will provide important context for MCC's LDP and the WG encourage MCC to continue to contribute to this work.

Local search areas

The **WG planning team would advocate for a plan-led approach, rather than a criteria-based approach**. Using the RLDP to identify local search areas would be preferable, but WG planning are conscious that it may not always be possible to aggregate small plots of land into a coherent single site/search area. **Ideally, the LDP would identify local search areas, at which point a criteria-based approach would be adopted that aligns with local and national targets.**

With regards to the recent changes in PPW 12 Chapter 6 (Welsh Government, 2023a; Welsh Government, 2023b), it states that: *"planning authorities will need to be satisfied that any reasonable alternative sites (including alternative siting and design options) that would result in less harm, no harm or benefit have been fully considered*". WG planning can confirm that this policy will apply to all projects, and developers need to ensure that there is consistency in the process. If there is a potential project identified on a site designated as the most suitable/appropriate, but does not align with PPW 12 Chapter 6, further

discussions with the WG planning team will be required. The LDP process provides the opportunity to consider these issues at the plan level.

The WG planning team don't believe that there is an optimum approach for siting projects together or spreading them out across a LA. If it is unlikely a concentrated development area(s) can be identified owing to a fragmented pattern of suitable sites and this is supported by the available evidence, then alternative approaches can be justified. Given the number of factors that need to be considered (environmental impact, visual impact, BMV, grid etc.), **where projects are sited should be a consequence of these assessments, rather than a starting point**.

Target setting & local ownership

Within Planning Policy Wales (Welsh Government, 2021a), Welsh Government state "*Using LAEP or other development plan evidence, local authorities should identify challenging, but achievable targets for renewable energy in local/ regional plans and strategies or development plans. In order to identify a measurable target, which can be assessed and monitored, it should be expressed as an absolute energy installed capacity figure. This should be calculated from the resource potential of the area and should not relate to a local need for energy*."

The planning team agree that the starting point should always be "what resource is available?", however they advise against jumping to an exact MW or % figure too soon.

Balancing resource potential and local impact requires stakeholder engagement to understand how best to utilise the resource and create realistic renewable energy targets. As mentioned above, **a plan-led approach is the optimum solution** according to the WG planning team, however **criteria-based policies will play a role**, and these need to be informed by input from stakeholders. Some questions to consider are:

- What is a realistic amount of resource? (e.g. MCC's RLCEA states a potential for ~8GW of solar, but developers will quickly state this is unfeasible)
- What can realistically be achieved over the plan period?
- What areas can be identified as potential sites to develop on?
- Where is grid capacity?
- Does the latest national planning policy set out any new issues to be considered?

Asking these questions will help identify which areas need to be targeted. Most importantly, it **should always be the RLDP that guides the decision-making process**.

Another thing to note is that the WG Toolkit for Planners (Welsh Government, 2015) isn't prescriptive. The toolkit applies to all of Wales, and due to this not every step needs to be followed, this is why **local knowledge and understanding is so crucial in the decision-making process**. Different LAs will have different resources and technology choices available to them. If a certain section in the toolkit doesn't seem applicable to MCC, a different approach can be taken, however justification will need to be demonstrated to the WG planning team. One example where this may be relevant is the issue of local biomass targets in MCC. Following the toolkit methodology leads to high targets based on local resource, which may not be realistic.

There are several additional documents that should feed into discussions around local ownership, including, but not limited to:

- *Monmouthshire Local Area Energy Plan (LAEP)*, expected 2024.

- *Designing for Renewable Energy in Wales*, published 2023 (Welsh Government, 2023c).
- *Heat Strategy for Wales*, Draft published 2023, (Welsh Government, 2023d).
- *Local and shared ownership of energy projects in Wales,* published 2022, (Welsh Government, 2022b).

3.2. Interview 2: Welsh Government Landscapes, Forestry and Agriculture Division

Context

Representatives from Welsh Government (WG) Landscapes, Nature & Forestry (LNF) were interviewed on November 29th, 2023, to better understand the implications of BMV land (and associated policies) on renewable energy developments in MCC.

Key Points

- The recent clarifications to Planning Policy Wales Chapter 6 (Welsh Government, 2023a; Welsh Government, 2023b) is not a change in policy. The guidelines were being misinterpreted by developers which led to the need for WG to publish this clarification.

- The WG LNF team believe the best approach would be a sequential test approach, where sites are assessed individually on a case-by-case basis to consider impact on biodiversity, agricultural land etc.

- Pre-assessed, local search areas can lead to developers assuming that all applications in these areas will be granted permission, which isn't the case. Local search areas are also unlikely to stop developers filing applications for sites outside of the local search areas.

- Applications on BMV land should only be considered if developers clearly demonstrate that a sequential test approach has been followed.

- Local (or national) targets should not be used as a justification to build on BMV land.

Interview Notes

Challenges and opportunities for renewable energy deployment

The Welsh Government (WG) Landscapes, Nature & Forestry (LNF) team are **in agreement with WG planning policy team that any renewable energy developments need to be aligned with national policies, outlined in Future Wales** (Welsh Government, 2021a) **and Planning Policy Wales (PPW) (**Welsh Government, 2021b).

As the LNF team are statutory consultees for the RLDP to ensure alignment with Future Wales and PPW guidelines, they are aware of the strict caveats around renewables in both of these guidance documents. This involves verifying that developers are doing everything they can to adhere to PPW/Future Wales guidelines.

The recent clarification from WG on biodiversity considerations will have implications for potential developments on peatland, less so for BMV land. A key reason for the WG clarification was that there were inconsistencies in how the policy was being interpreted – how it relates to Future Wales has been taken out of context by developers. To the LNF team, this is why it is clearly a **clarification, not a new, more stringent policy.**

Regarding BMV land, the policy hasn't changed in a number of years. Cases will either be policy compliant or not, depending on whether developers meet all the conditions outlined in WG national policies. More recently, the LNF team have been **seeing fewer applications for developments on BMV land.** They believe that this is **at least partially due to some projects being denied permission but mainly following the clarification of policy on BMV and solar PV via the DCPO letter of 1 March 2022 (Welsh Government, 2022a).**

In instances where BMV land is present in applications, there must be an appropriate policy assessment that goes alongside it (see paragraphs 3.58 and 3.59 from PPW) in demonstrating 'significant weight' given to protecting BMV, demonstrating an 'overriding need and application of the sequential test approach. Developments involving large areas of BMV are likely to be more difficult to justify policy compliance but are assessed on a case-by-case basis on their own merits.

Local search areas

The LNF team **don't have any initial thoughts on the local search areas identified in the briefing note**. So far, it isn't clear how BMV policies are being applied within the local search areas (or the weighting BMV has been given, compared to other constraints).

MCC can still consult with the LNF team through the existing TAN6 provision (Welsh Government, 2010). This can provide support in providing technical advice on land quality and practicality (e.g.: does a particular policy apply to the given site? What surveys would likely be required?). They can also provide support in interpreting the agricultural land classification (ALC) map. That being said, the team at LNF is small, and it may take them a long time to provide support, given the number of requests coming in.

One challenge with pre-assessed areas is that people usually think that any developments in those areas will be granted permission. This is something they have seen for wind projects as a result of the Future Wales pre-assessed areas for wind. Also, this hasn't stopped developers from making applications in areas outside of the pre-assessed areas. Since developers don't seem to be using these areas as a starting point, the LNF team **don't think local search areas are the best approach.**

Target setting & local ownership

The LNF team **don't believe that targets should be used as a justification to build on BMV**. Targets will need to be realistic and in alignment with the land potentially available. Given that there is a BMV criteria in national policy, it's not realistic to say that all agricultural land is potentially available. Blanket assumptions such as these are unhelpful, and it will need to be assessed on a case-by-case basis. Until you look at site specifics, it will be hard to know which parcels of BMV land are suitable for development.

The best approach would be a sequential test approach early in the site selection process, where sites are assessed individually. The WG LNF team don't want to object to all applications on BMV land, but **clear evidence that the policy and sequential test approach has been followed would be imperative for**

permission to be granted. It needs to be a transparent framework, and if MCC don't get it right now, it will likely be a recurring problem, even after the RLDP.

3.3. Interview 3: National Grid Electricity Distribution

Context

Representatives from National Grid Electricity Distribution (NGED) were interviewed on November 23rd, 2023, to gain a perspective from Monmouthshire's distributed network operator (DNO). NGED provided context around the current grid connection issues and how this might affect target setting and local search area identification, particularly regarding the grid capacity required to meet renewable energy generation targets within the RLDP period.

Key Points

- Renewable energy developments in MCC will be restricted not only by congestion at the distribution level, but also upstream transmission network constraints. Slow responses to planning applications and opposition to renewable developments (e.g.: wind farms) and infrastructure works (e.g.: network upgrades) from the general public are also important constraints to consider.

- In the future, NGED will begin to play a more active role in queue management processes, gradually moving away from the first-come, first-served approach.

- NGED believe that local search areas seem reasonable but expect new generators to be connected across the network, rather than being focussed in certain areas.

- One potential risk of pre-assessed areas is that this may lead to a spike in applications in these areas, which, without proper planning, can have a negative impact on the network and the deployment of generators.

- Any renewable energy targets set by MCC should be based on resource availability and standard criteria within a region. Parallel to this bottom-up approach, WG need to look at the energy system from a top-down perspective to make sure that all of Wales's targets can be met.

- Balancing local generation targets and national targets is crucial, this includes considering current and future transmission-connected projects.

Interview Notes

Challenges and opportunities for renewable energy deployment

One of the most obvious challenges to meeting decarbonisation targets is grid capacity and electrical infrastructure. The grid is currently constrained across Wales, especially in south Wales, but it is important to provide some context around why this is happening. Currently**, only 20-30% of the projects in the queue actually break ground**. This is something NGED are seeing across their network, not just in MCC.

NGED understand that grid capacity is a key constraint, and helping more customers get access to electricity networks is one of the biggest challenges to tackle. However, a significant portion of the challenges come from the upstream transmission network. This means that **MCC will see knock-on effects from transmission network constraints, not only in Wales, but across the UK**.

Another challenge to consider is planning consent and wayleaves to build new infrastructure. The general public is strongly opposed to infrastructure upgrades in their area, both for renewables (e.g. wind turbines) but also network upgrades (new pylons, substations etc.).

There are new regulations that can allow people living near areas where pylons are being built to benefit from financial incentives, however this only applies to the transmission network, not the distribution network. This may cause frustration when people expect compensation and don't receive anything.

In terms of technology choices, **NGED do not see any technologies causing greater challenges than others** in connecting to the grid and meeting customer demand. Batteries pose some additional engineering challenges as they can import and export from the network which impacts voltage step change. NGED are confident that heat electrification is going to take hold in the 2030s and 2040s, and they are getting ahead of this curve to not be in the same position as they currently are in with the rise of distributed energy generators. They expect to see synergies between EV charging and renewables, and networks are being designed with these future demand sources in mine. The local area energy planning (LAEP) process is helping with this, as it allows for a high level of granularity for each individual LA.

Over the next 10 years, NGED are going to continue to try to move away from treating applications through a first-come, first-served basis. This will mean that the **DNOs will need to take a more active role in securing connections** and should reduce the number of speculative applications requesting to connect. The new queue management process (National Grid ESO, 2023) should see some capacity freeing up almost immediately. NGED are also actively reviewing connection applications from 2017 and earlier to unlock additional queue capacity.

It's important to note that in addition to the current queueing system, **slow responses to planning applications can also hold up projects**, and, as mentioned earlier, the reinforcement works required at the transmission level can also hinder the rate at which NGED capacity is freed up. One of the biggest challenges NGED are currently facing is how best to interact with the transmission/distribution boundary, mainly due to the sheer volume of information that needs to be shared across both organisations. Recently, NGED have agreed on "technical limits" set by the energy system operator (ESO), which are limits based on grid-based constraints. This allows NGED to calculate a budget of how much can be connected each year and should help with prioritising which developers can connect immediately. Once the budget is exceeded, applicants can begin being factored into the following year's capacity budget.

The existing NGED network capacity map is going to be re-released soon as a new and upgraded version which can assist users in identifying potential connection points and upstream constraints (including transmission network constraints).

On battery storage and private wire connections**,** the UK electricity system will be moving towards connecting more generation to the network than is needed ("over-commitment") which should allow more customers to connect but would require a more active role from DNOs to manage the system. Over time, **NGED expect to see more generators being curtailed**, as they have already been offering connection in active network management (ANM) zones for the last 8 years. Battery and private wires can provide additional benefits for curtailed generators, as it allows for improved whole system

efficiency as excess generation (which would otherwise be curtailed) could be used for other purposes, such as hydrogen electrolysis. **The primary need for increased curtailment in the future is because this provides the most cost-effective pathway to Net Zero by 2050**.

A final consideration for MCC is that coherent knowledge-sharing between departments and projects will facilitate renewable energy policy target setting. One example flagged by NGED is MCC's Local Area Energy Plan (LAEP), expected to be published in 2024. Insights derived from discussions between MCC and NGED as part of the LAEP process don't seem to have been considered in this work.

Local search areas

The **approach for local search areas seems sensible**, but NGED don't have any hard views on the local search area vs. criteria-based approach. In terms of where generators will be located, **NGED aren't planning for a fully centralised system in the future where generators are all co-located**. Nevertheless, they are aware that some parts of Wales have less infrastructure/capacity, including northern Monmouthshire. Historically, there have been voltage issues in this area.

Having pre-assessed areas can help NGED plan reinforcement works accordingly, but they would expect there to be a spike in applications in these areas, which, without proper planning, can impact the rate of deployment of generators.

Target setting & local ownership

NGED believe that a realistic **deployment target of renewables in Monmouthshire should be based on resource availability and standard criteria within a region** (e.g.: BMV land). This sort of bottom-up approach would be best. However, NGED is conscious that someone needs to look at the energy system from a top-down perspective to make sure that all of Wales's targets can be met.

One limitation from the early LAEPs that NGED have seen is that they extrapolate future generation to meet the LA's demand. This makes it difficult for Wales to track target progress and plan future commitments as it doesn't consider any national plans currently underway (e.g. offshore wind farms coming online in north Wales). **LAs should base targets on available resource, rather than solely focussing on meeting their own demand**. For example, in the case of MCC's huge solar resource, they could consider not only meeting their own future demand but also becoming a net exporter to neighbouring LAs with less solar resource. There is a risk that LAs get tunnel vision by only focussing on local targets, and this is where **more oversight from WG is needed to ensure Wales is on track to meet national targets**. **Balancing local generation targets and national targets is crucial**, and to do this transmission-connected projects (both current and future) must be taken into account.

Local ownership targets won't affect NGED's process around connections, but they are keen to better understand MCC's future approach to planning applications, which will certainly be influenced by local ownership targets. There are only a small number of businesses/developers reaching out to NGED to connect projects, on behalf of customers. The rules on what needs to be provided for a connection agreement is better at the distribution level than the transmission level, but local ownership targets may impact how MCC prioritise planning applications (and ultimately, this will impact the timescales of grid connection). For example, if two projects are put forward simultaneously, one by MCC and one by a private developer, would MCC prioritise their own (potentially worse) project in order to meet local ownership targets? This is just one example of the questions MCC should be considering when deciding on their local ownership approach, and any associated targets.

3.4. Interview 4: Protium Green Solutions

Context

Rebecca Zeitlin of Protium Green Solutions, a hydrogen developer calling for renewable energy proposals in the area to provide green hydrogen was interviewed on November 24th, 2023. Protium are currently developing a project in Monmouthshire, Magor Net Zero (MNZ), to supply Magor brewery with heat and transport capabilities. The planned project is comprised of a hydrogen electrolyser with energy provided by onsite renewables (17 MW of ground-mounted solar PV and a 3MW wind turbine).

Key Points

- As grid congestion is one of the main technical barriers, Protium would like MCC to better understand the difference between projects connected to the grid vs. off-grid projects and facilitate the planning process/criteria for off-grid opportunities.

- Protium are seeing lots of demand for off-grid hydrogen capabilities, and MCC can do more to support these types of projects which are essential for large industrial consumers striving to meet their Net Zero targets.

- A key challenge is finding a site that is suitable for both offtaker(s) and planning authorities, and therefore Protium believe that adopting a local engagement first approach is the best option.

- Protium would like to see MCC have more decision-making power, rather than needing to always refer back to national policies.

- Local search areas are helpful and Protium would welcome this steer from MCC. In addition to this, Protium believe that an accelerated planning process for renewable developments sited in these local search areas would help incentivise developers to prioritise these areas.

- A volumetric hydrogen target seems unwise to calculate at this stage, but it would be worthwhile for MCC to set industrial heat decarbonisation targets.

- Protium are in favour of local ownership targets as it supports local buy-in, however, these can pose challenges as Protium typically own their own renewable assets.

Interview Notes

Challenges and opportunities for renewable energy deployment

The most effective set-up for these types of projects (Magor Net Zero) is co-locating renewables and Hydrogen. It is usually easier and cheaper to connect these via a private wire. In some instances, renewable generation occurs offsite, but this is typically more challenging due to additional costs and technical complexities associated with grid connection(s) and/or power purchase agreements (PPAs).

One of the biggest challenges Protium are facing is that the land on which the MNZ project is to be developed falls within a SSSI. Because of the broad, vague language around SSSIs in national planning policy, it's challenging to even have a conversation about connecting renewables at this site. Some of

the sites that Protium were considering are currently being used for heavy agricultural land use which is leading to water runoff in nearby SSSIs (e.g.: nearby streams, ponds etc.). This is frustrating for Protium as developing H^2 capabilities on this land would not only support the Net Zero transition, but also be directly less harmful for the surrounding environment.

Protium believes that wind is generally more complicated than solar PV, due to the larger visual impact risk, even when one considers the smaller physical land footprint of wind. One consideration is that in agricultural regions, people are more opposed to solar PV because of the perceived loss of farmland, even if this land is unsuitable for farming.

One of the key barriers that needs to be overcome in order to achieve a fast, large-scale, local deployment of renewables is finding a site that works both for the offtaker and the planning authorities, while remaining financially viable. **Adopting a local engagement first approach is the best option**.

There are lots of opportunities for deploying electrolysers that aren't connected to the grid, as **grid connection is one of the biggest challenges to overcome** (MNZ project isn't grid-connected). The other option is to over-produce and send excess generation back to the grid. From a policy point of view, Protium believes that **MCC need to have a better understanding of the differences between these types of projects (grid connected vs. not grid connected**). Ideally, the LAs would push more towards "off-grid" solutions for large industrial consumers, and MCC need to better support this transition. If they continue to treat these projects like standard grid-connected generation schemes it will slow down the Net Zero transition. Moreover, Protium have seen a lot of demand for hydrogen and are hoping to continue to push discussions with MCC (and other LAs) to see how they plan to meet this industrial demand. Protium are already speaking with some LAs but would like to see more engagement.

Regarding the recent changes to Planning Policy Wales (PPW) Chapter 6 (Welsh Government, 2023a; Welsh Government, 2023b) on the more stringent approach to biodiversity, Protium doesn't see it as very helpful. It's challenging to find room to discuss what would/wouldn't be problematic. These **discussions aren't happening because of blanket statements like these which hinder conversation.**

Ideally, they would like to see the local MCC team have more decision-making power around exclusions to PPW (Welsh Government, 2021a), rather than simply referring them back to PPW. Defining what is "nationally significant" and "locally significant" is also blurry… what does "significant" mean? It's **hard for developers to understand what the terminology means,** and which projects would fall into these categories.

Local search areas

Local search areas are very helpful and Protium would welcome this steer from LAs. To Protium, it means they can save time by not starting applications that lead to nowhere. Going further, Protium would **recommend an accelerated planning process for renewable developments that would be sited in these local search areas**. While this might not discourage Protium for looking outside these search areas, pre-assessed areas would definitely be prioritised, especially if there were additional advantages from a planning perspective.

Protium understands that the fragmentation of BMV parcels is challenging (and frustrating from a development perspective). However, local search areas are preferred as you start discussions from a more advanced position. Adopting a criteria-based approach seems a few steps further back. It **would be best if MCC highlighted areas to prioritise, and then apply a criteria-based approach.**

In terms of what the associated planning policies should entail, Protium have no specific asks/recommendations. However, they believe more effort should be made in getting the public on board with renewable developments, especially wind.

Target setting & local ownership

Generally, Protium are keen to see an extensive deployment of renewables as this presents more opportunities for off-grid hydrogen electrolyser opportunities. Delivering energy to grid isn't a key focus for them however, so renewable energy targets aren't as relevant to them as for the public sector.

Protium states that a **volumetric hydrogen target seems unwise to calculate at this stage** but would appreciate a clearer statement/stance on hydrogen. It is clear to Protium that hydrogen will play a key role in meeting industrial heat demand (MNZ project is designed for this cause). Due to this, **industrial heat decarbonisation targets would be worthwhile**, but this probably isn't the case for any domestic hydrogen targets. Heavy goods vehicles (HGVs) is another element to consider, but there are challenges to deliver enough local energy for hydrogen vehicles (or recharge battery vehicles). The high solar resource in MCC may allow for opportunities in this sector.

Protium believes it's always **important to have a range of technologies meeting demand**, even just to add redundancy in the system. Biomass, for example, could be a potential back-up for solar. However, setting these targets depends heavily on the view MCC take on the whole energy system, and what goal is ultimately trying to be achieved. **MCC should consider what the intention of setting a renewable energy target is as there is no good in setting unachievable targets.**

Local ownership is very important as it supports local buy-in, especially if there is ongoing benefit to the community. A **fixed requirement of local ownership may however pose challenges for Protium**, as they typically own the renewables co-located with hydrogen (they were unclear on whether they could count as local owners simply by having an office located in Wales). They typically want to acquire land before starting a project, and as is the case with MNZ, multiple landowners are often involved. Local ownership targets may therefore complicate the picture somewhat.

4. Conclusions

Targeted interviews have been held with key industry stakeholders to test, review and refine the Renewable Energy Policy Options and Recommendations contained within MCC's Renewable and Low Carbon Energy Assessment (Carbon Trust, 2020) in order to further inform renewable and low carbon energy policy and targets within the authority's Deposit Replacement Local Development Plan.

There is general agreement from all stakeholders that MCC will require a pro-active role in managing renewable energy applications and developments, not only during the development of the RLDP, but also during its implementation. Welsh Government and developers are keen to see MCC adopt more responsibility in the decision-making process for renewable energy projects, as local knowledge is crucial. Welsh Government also emphasises that MCC are responsible for ensuring their RLDP considers national targets and policies, as local, regional, and national planning risks and constraints will need to be considered to ensure goals are aligned.

Electrical network congestion is impacting connection applications across Monmouthshire, and all stakeholders appreciate the importance of this. Moreover, MCC will need to ensure that public support is maintained during the rollout of renewable generators in the coming years.

Welsh Government do not see the recent clarifications to Planning Policy Wales Chapter 6 regarding developing on BMV land as a change in policy and have confirmed that projects have already been refused planning application due to inadequate consideration of the impacts on agricultural land. Welsh Government are unwavering in their stance that applications will only be considered if there is evidence that developers have done everything they can to minimise the impact of developments. As this is likely going to be a key challenge for developers over the coming years, MCC should consider how they can best meet the needs of developers while continuing to align to national policy guidance.

The stakeholders agreed that given the low technical potential of wind power in the region it was sensible to not have local search areas. For solar PV, green hydrogen developer Protium Green Solutions and the Welsh Government Planning Policy Branch agreed that local search areas would be a good first step in theory as it aids better overall land planning by the council and allows developers to start planning from a more advanced position. Welsh Government and NGED flagged that a possible drawback of local search areas is that these may lead to a spike in applications in these areas, and MCC will need to consider this when devising the RLDP. Protium Green Solutions recommended an accelerated planning application process for sites in the local search areas to encourage developers to focus on these areas, but it did say that having local search areas would not necessarily discourage them from developing outside these areas. In contrast, the Welsh Government LNF team recommended a sequential-test approach, where sites are assessed on a case-by-case basis. The stakeholders who supported local search areas agree that a criteria-based approach would be sensible in these areas.

Local targets can be beneficial as it supports local buy-in, but these must also consider national targets to avoid competing goals. MCC need to also consider that developers may want to own their renewable assets, which will require a transparent framework to ensure that planning applications are treated fairly and consistently. Ongoing engagement between MCC and relevant stakeholders can help to effectively facilitate renewable energy deployment, and achieve the relevant targets set out in the finalised RLDP.

Although stakeholders did not give views on the specific target figures proposed they confirmed that the general approach must be from the starting point of theoretical resource potential in the area which should then be refined down based on constraints to give a realisable figure. The toolkit for planners should not be treated as prescriptive but should be adapted to the real situation of the county, which may mean that some energy sources dominate the targets and others are not included.

5. References

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Published in the UK: 2024

Appendix 3 – Interested Stakeholders Workshop Briefing Note

Monmouthshire Replacement Local Development Plan

Renewable and Low Carbon Energy Stakeholder Workshop Briefing Note (February 2024)

This Briefing Note provides information that will be discussed at the Council's Renewable Energy Workshops. The workshops will help to inform the Council's land use policies and proposals relating to renewable energy generation in Monmouthshire. A summary of proposals is set out below with further details provided from page 2 onwards.

Summary of Proposals – Full details are set out from page 3.

Proposal 1: The RLDP **does not allocate Local Search Areas** reflecting the prevalence of high-quality agricultural land in the County and Welsh Government's policy position on protecting Best and Most Versatile agricultural land, however, it will include a criteria-based policy for renewable energy proposals to be assessed against.

Proposal 2: To base the RLDP renewable energy targets on a percentage of resource available in the county for ground mounted solar and onshore wind consistent with national planning policy and align roof top solar PV and heat pumps targets with the RLDP growth levels. It is also proposed to incorporate a low and high range to the targets to allow for flexibility, constraints, and suitability factors.

Preferred Target Approach	Low Target MW (Power & Heat)	Low Target MWh p.a	High Target MW (Power & Heat)	High Target MWh p.a
Percentage of maximum theoretical resource for solar and onshore wind and alignment with the RLDP growth levels for roof top solar PV and heat pumps	137	151,000	250	248,564

Proposal 3: Having regard to Welsh Government's target for 1.5GW of renewable electricity and heat capacity to be locally owned by 2035[1] and paragraph 5.9.24 of PPW which states that Welsh Government has an expectation for all new renewable energy projects in Wales to include at least an element of local ownership, a resource based locally owned renewable energy target has been established.

[1] WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (WG – June 2022 - https://www.gov.wales/sites/default/files/publications/2022-06/guidance-local-and-shared-ownership-of-energy-projects-in-wales_0.pdf)

Monmouthshire Locally Owned Renewable Energy Generation by 2033
Target of 54MW of renewable energy generation being locally owned by 2033 (no constraints factored in) **Or** Target of 11MW of renewable energy generation being locally owned by 2033 (to take account of land use constraints including BMV agricultural land)

An alternative approach could be to not specify a target and rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership.

Monmouthshire Replacement Local Development Plan

Renewable and Low Carbon Energy Stakeholder Workshop Briefing Note (February 2024)

Contents

Background Documents

- Monmouthshire Renewable and Low Carbon Energy Assessment (The Carbon Trust, Oct 2020) and Non-technical Summary.
- Monmouthshire Renewable and Low Carbon Energy Stakeholder Briefing Note – Targeted Interviews (December 2023) (to be published at Deposit Stage)
- Monmouthshire Engagement Report – December 2023 (to be published at Deposit stage)

1. Introduction

1.1. The purpose of this stakeholder engagement is to seek views from targeted organisations on the potential to identify Local Search Areas (LSAs) and renewable energy generation targets within the Replacement Local Development Plan (RLDP).

1.2. Monmouthshire County Council (MCC) is in the process of producing a RLDP to set out land use policies and allocations covering the period 2018-2033. Within this context, the RLDP needs to address and provide for clean growth and the decarbonisation of energy in line with national and local policy aspirations.

Developing an Evidence Base

1.3. To ensure this role is fulfilled, PPW12 places a requirement on planning authorities to develop an evidence base to inform the development of renewable and low carbon energy policies. The **Welsh Government's Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners** (Sept 2015)[2] is advocated within

[2]Practice Guidance: https://www.gov.wales/sites/default/files/publications/2018-09/renewable-energy-toolkit.pdf

PPW12 as an acceptable methodology for developing an evidence base to inform spatially based renewable energy policies and allocations for inclusion within the RLDP.

Evidence to date

1.4. **Monmouthshire's Renewable and Low Carbon Energy Assessment**[3] (RLCEA) was finalised in October 2020 and assesses the potential renewable energy resource within the county (excluding the Bannau Brycheiniog (Brecon Beacons) National Park (BBNP)) from the following technologies:

- Wind Energy
- Ground mounted solar photovoltaics (PV)
- Biomass energy
- Energy from waste/anaerobic digestion
- Hydropower energy
- Roof top solar photovoltaics (PV)
- Heat pumps

1.5. The study concludes that Monmouthshire has a theoretical resource to meet/offset approximately three times' its current[4] energy needs with renewable/low carbon energy generated within the county. In practice, the opportunities may be restricted by local and national energy infrastructure (grid capacity), competition with other land uses and issues such as landscape impact.

1.6. The results of the renewable energy assessment show that there is very high solar resource potential in the county and limited potential for wind and heat networks. Provisional geographical areas of less constrained land for ground mounted solar / onshore wind developments that may be suitable to inform the designation of Local Search Areas[5] (LSAs) for solar and wind development have been identified in the assessment. Several policy recommendations are provided as well as suggestions for further action.

1.7. To help inform potential policy options the Toolkit recommends undertaking targeted interviews to gain feedback from industry and key stakeholders to add to the evidence base. Four interviews were conducted by the Carbon Trust during December 2023 with representatives from the following organisations:

- Welsh Government – Planning Policy Branch
- Welsh Government – Landscapes, Nature and Forestry Division
- National Grid Electricity Distribution (NGED)
- Protium Green Solutions

[3] https://www.monmouthshire.gov.uk/app/uploads/2021/12/RLCEA-MCC-Report-Body-Version-1-1.pdf
[4] 2017 – the latest published data when preparing the study
[5] Preferred, broad, geographical area for development for solar PV. Agreed LSAs will be identified in the RLDP.

1.8. Key points from the interviews are noted at the end of Section 2 – Consideration of Local Search Areas in Monmouthshire and the Section 3 - Renewable Energy Targets for Monmouthshire.

2. Consideration of Local Search Areas in Monmouthshire

Purpose of Local Search Areas

2.1. Welsh Government's Renewable Energy Toolkit notes under section E4.3, that **"*a local authority should identify spatially, areas that may be particularly suitable for larger scale renewable energy development*" so that "*it sends an invitation to potential developers that the local authority is interested in seeing suitable development in those sites and that there is a greater likelihood of securing planning consent for applications in those areas*".**

2.2. PPW12 confirms this approach, stating that "planning authorities should assess the opportunities for renewable and low carbon energy in the area, and use this evidence to establish spatial policies in their development plan which identify the most appropriate locations for development of energy developments below 10MW. **There should be a presumption in favour of development in identified areas, including an acceptance of landscape change, with clear criteria-based policies setting out detailed locational issues to be considered at the planning application stage**" (5.9.14).

Identification of Less Constrained Areas of Land for Wind and Solar

2.3. In order to identify 'less constrained areas' of land potentially suitable for wind and solar resource, a number of constraints were excluded from consideration. These included environmental designations/landscape designations including the Wye Valley National Landscape, Special Area of Conservation (SAC) and Sites of Special Scientific Interest (SSSIs), heritage designations and infrastructure constraints such as proximity to railway tracks. A secondary exercise was also undertaken to remove all Best and Most Versatile (BMV) agricultural land from the initially identified areas to compare the potential resource levels in the County.

Updated Chapter 6 of PPW – Addressing the Nature Emergency through the Planning System

2.4. In October 2023 Welsh Government issued an update to Chapter 6 – Distinctive and Natural Places of PPW including further clarity on securing net benefit for bio-diversity through the application of the step-wise approach. Consistent with Chapter 6, statutory designations, such as SSSIs, RAMSAR sites, Special Protection Areas and Special Areas of Conservation were excluded from the search area from the outset. At this stage in the process, non-statutory designations such as Sites of Importance for Nature Conservation (SINCs) were not excluded due to the large number and dispersed nature of the designation. National and local policy framework allow for the step-wise approach to be applied to non-statutory designations at the site-specific stage.

Wind Results

2.5. The constraints assessment identifies just small areas of land in the study area as less constrained for wind developments. These are generally clustered in the most northerly part of the county and the most southerly part of the county. It is estimated this land could accommodate approximately 32 MW of wind capacity. This is considered a low resource capacity given the size of the study area. Having regard to the findings of the RLCEA and Future Wales, which does not identify any Pre-Assessed Areas for Wind within Monmouthshire, **the supportive criteria-based planning policy option is considered the most appropriate way forward for the RLDP in relation to wind.**

Solar Results

2.6. At a high-level, a very large proportion of land within Monmouthshire is theoretically suitable for ground mounted solar PV development. Although, it should be noted that it is unlikely that the full land area would be developed due to additional considerations including cumulative impact, landscape impact, allowance for hedgerows and woodland not included in the constraints assessment, grid capacity and competition with other land uses. However, to take account of further clarification from Welsh Government on the consideration of Best and Most Versatile Agricultural land in relation to solar farms as noted in paragraph 2.3 an exercise to exclude BMV land was undertaken. The potential resource reduces by approximately 80% if Best and Most Versatile Agricultural Land is excluded from the resource. Figures 1 and 2 illustrate the difference between the theoretical resource including and excluding BMV land. It can be seen that removing BMV land results in sparse distinct land parcels rather than broad areas.

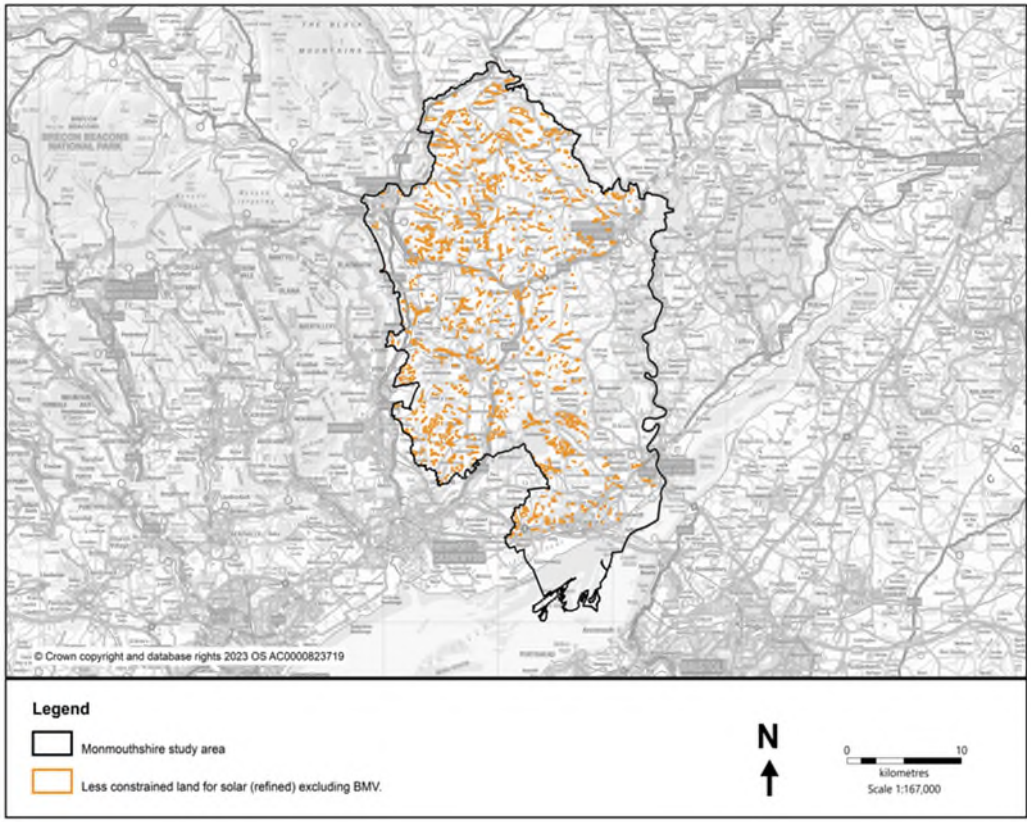


Figure 1: Less constrained land for solar with Best and Most Versatile Land excluded

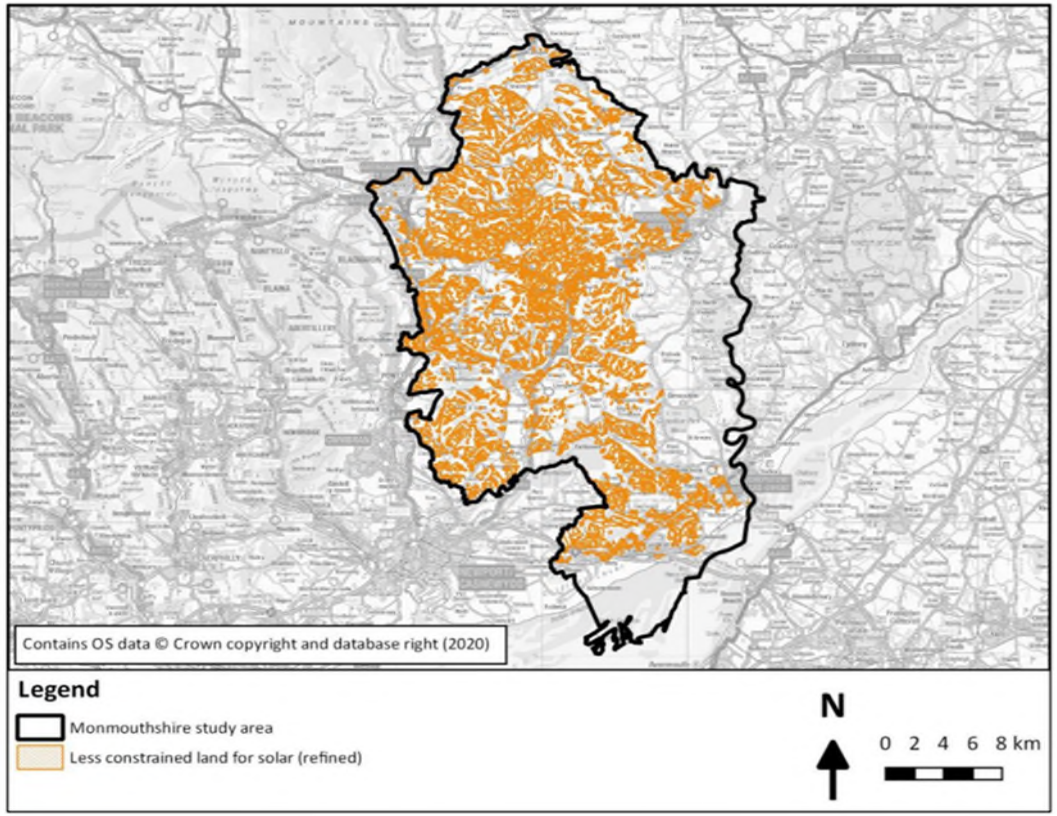


Figure 2: Less Constrained Land for solar including BMV land

Interview Feedback on Local Search Areas Options

2.7. Key points raised in relation to Local Search Areas during the interviews included:

- Welsh Government Policy Branch support a planning-led approach to land development and thus are supportive of local search areas as a starting point for site identification, however they acknowledge the difficulty of designating broad areas given the constraints associated with Monmouthshire.
- Welsh Government Landscapes, Forestry and Agriculture Division consider a sequential test approach, where sites are assessed individually on a case-by-case basis to consider impact on biodiversity, agricultural land, etc to be the best approach.
- National Grid Electricity Distribution (NGED) believe that local search areas seem reasonable but expect new generators to be connected across the network, rather than being focussed in certain areas. A potential risk of pre-assessed areas is that it may lead to a spike in applications in these areas, which without proper planning can have a negative impact on the network and the deployment of generators.
- Protium Green Solutions welcome local search areas as they would help incentivise developers to prioritise these areas. They would like to see more decision-making power at the local level in order to fast-track applications in these areas. However, they also acknowledged that they would not be discouraged from developing projects outside of the designated areas.

Proposal 1: Recommended RLDP Approach to Local Search Areas

2.8. Given the prevalence of high-quality agricultural land in the County, it is proposed that the RLDP **does not allocate Local Search Areas** reflecting Welsh Government's policy position on protected Best and Most Versatile agricultural land. However, it is proposed that a criteria-based policy to assess renewable energy proposals is included in the RLDP.

3. Consideration of Renewable Energy Targets for Monmouthshire

3.1. Having established an evidence base for an estimated maximum theoretical resource (EMTR) within the RLCEA, PPW12 requires LPAs to develop targets for renewable energy generation which can be incorporated into Local Development Plan policies and monitoring over the life of the plan period.

3.2. PPW12 states that local authorities should identify challenging, but achievable targets for renewable energy in local/regional plans and strategies or development plans. In order to identify a measurable target, which can be assessed and monitored, it should be expressed as an absolute energy installed capacity figure. This should be calculated from the resource potential of the area and should not relate to a local need for energy.

Monmouthshire Local Area Energy Plan (LAEP)

3.3. The Council is in the process of preparing a Local Area Energy Plan which considers the whole energy system in the county and the potential ways to move towards a net zero carbon energy system. This is broader than the work covered within the RLCEA which addresses specific land use requirements set out in the PPW12 for inclusion in in the RLDP. However, it is important that the two are consistent with each other. We will continue to monitor both processes to ensure the two align.

3.4. A range of potential renewable energy sources have been considered as part of the RLCEA. However, due to factors such as a relatively small resource, infrastructure restrictions or long-term contracts in place for dealing with waste, it is proposed that the RLDP will contain targets for ground mounted solar, onshore wind, roof top solar PV and heat pumps. Renewable energy sources that do not have a target will still be open to consideration as part of the planning application process.

Proposed Renewable Energy Targets: Target a certain proportion (X%) of maximum theoretical capacity - 5% of maximum theoretical capacity for solar resource and 10% of maximum theoretical capacity for other energy technologies.

3.5. This scenario has been refined from the starting point of 50% of maximum theoretical capacity, which resulted in particularly ambitious and challenging targets, predominantly due to the high solar resource identified. To take account of this a refined scenario with a low and high target range of 5% - 10% Estimated Maximum Theoretical Resource (EMTR) of solar resource and 10% - 20% EMTR of other technologies has been prepared, excluding BMV agricultural land to be consistent with the approach taken to Local Search Areas. The refined scenario is considered to provide an appropriate basis for establishing a target for the RLDP, reflecting competing land uses and other constraints such as landscape impact.

3.6. However, it should be noted that as the starting point for this scenario is the existing housing stock and industrial building in the County as well as proposed RLDP growth levels. The resultant targets are therefore beyond the scope of the RLDP as its policies will only apply to new development and not the existing housing and building stock.

Energy Technology	Estimated Maximum Theoretical Resource		Current Installed Capacity		Target Scenarios for renewable energy generation by 2033				Comments
					(5% solar - 10% others)		(10% solar – 20% others		
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Power									
Onshore Wind	32	76,000	0.3	700	3	7,000	6	14,000	2 – 4 small turbines
Ground Mounted Solar (excl. BMV land)	1,887	1,653,000	35	31,000	94	82,000	189	165,564	Equivalent to 165 or 331 ha
Roof Mounted Solar PV	138	121,000	14	12,000	14	12,000	28	24,000	Approximately 4,000 – 8,000 homes
Total Power				**43,7000**	**111**	**101,000**	**223**	**203,564**	
Heat									
Heat Pumps	503	883,000	4	6,000	50	88,000	100	176,000	Approximately 5,000 – 10,000 homes
Total Heat				**6,000**	**50**	**88,000**	**100**	**176,000**	
Total Heat and Power				**49,7000**	**161**	**189,000**	**323**	**379,564**	

Table 1: 5% of maximum theoretical capacity for solar resource and 10% of maximum theoretical capacity for other energy technologies.

Alternative approach to the Roof Mounted Solar PV and Heat Pumps Targets

3.7. This target relates specifically to the roof mounted solar generation and installation of heat pumps to take account of the scope of buildings that will fall within the remit of the RLDP policies. As noted in paragraph 3.6, the RLDP policies will only apply to new development and therefore establishing a target that relates to the existing building stock as well as new development will be undeliverable from a RLDP perspective and is considered to be more appropriately set through the LAEP. However, given the Council's commitment to deliver net zero homes a target specifically linked to the RLDP proposed growth levels is considered to be a valid alternative.

3.8. The RLDP proposes to make provision for 6,210 homes (including a 15% flexibility allowance) to meet a housing requirement of 5,400 and provide a minimum of 38ha of employment land. However, as the plan period runs from 2018, approximately 3,000 homes have already been built or agreed via the planning application system. The low and high targets noted in Table 2 therefore reflect an element of flexibility to allow for

delivery rates and a suitability factor for roof top solar and heat pumps to be considered, e.g. not all new properties are suitable for solar panels due to orientation etc.

Energy Technology	Estimated Maximum Theoretical Resource		Current Installed Capacity		Target Scenarios for renewable energy generation by 2033				Comments
					Low Target		High Target		
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Power									
Onshore Wind	32	76,000	0.3	700	3	7,000	6	14,000	2 – 4 small turbines
Ground Mounted Solar (excl. BMV land)	1,887	1,653,000	35	31,000	94	82,000	189	165,564	Equivalent to 165 or 331 ha
Roof Mounted Solar PV (realigned with the RLDP)	138	121,000	14	12,000	10	9,000	15	13,000	Approximately 2,500 – 3,000 homes and element of employment
Total Power				**43,7000**	**107**	**98,000**	**210**	**178,564**	
Heat									
Heat Pumps (realigned with the RLDP)	503	883,000	4	6,000	30	53,000	40	70,000	Approximately 2,500 – 3,000 homes and element of employment
Total Heat				**6,000**	**30**	**53,000**	**40**	**70,000**	
Total Heat and Power				**49,7000**	**137**	**151,000**	**250**	**248,564**	

Table 2: Revised Roof Mounted Solar PV and Heat Pumps to align with RLDP growth levels

Interview Feedback on Renewable Energy Targets

3.9. Key points raised during the interviews in relation to potential renewable energy targets included:

- Welsh Government Planning Policy Branch noted that the starting point should always be what resources are available, followed by consideration of what can be achieved in the Plan period, grid capacity, national targets and any new issues in national planning policy.
- Welsh Government Landscapes, Forestry and Agriculture Division noted that local (or national) targets should not be used as a justification to build on BMV land.
- National Grid Electricity Distribution (NGED) noted that renewable energy targets should be based on resource available and standard criteria in the region. Parallel to this bottom-up approach, WG need to look at the energy

system from a top-down perspective to make sure that all of Wales's targets can be met.

- Protium Green Solutions noted that MCC should consider what the intention of setting a renewable energy target is and there is no benefit to setting unachievable targets. More could be done to support off-grid opportunities.

Proposal 2: Recommended RLDP Approach to Renewable Energy Targets

3.10. The preferred approach is to base renewable energy targets for inclusion in the RLDP on a percentage of resource available in the county for ground mounted solar PV and onshore wind consistent with national planning policy and align roof top solar PV and heat pumps targets with the RLDP growth levels. This combination is considered to provide a appropriate basis for the targets with the possibility to incorporate a low and high target range in the RLDP.

Sub- Target - Local Ownership Targets

3.11. Welsh Government has set a target for 1.5GW of renewable electricity and heat capacity to be locally owned by 2035[6]. Paragraph 5.9.24 of PPW goes on to state that Welsh Government has an expectation for all new renewable energy projects in Wales to include at least an element of local ownership.

3.12. The RLCEA considers two approaches to establishing a locally owned renewable energy target. The first based on the proportion of Wales' population in Monmouthshire and secondly based on the proportion of Wales' land area in the study area. The second option is preferred as a basis to establish a target as this relates more to the available resource rather than demand and is therefore consistent with national policy.

3.13. It should be noted that in the first instance the target relates to the total land area of the study area as a proportion of the land area of Wales without considering any particular constraints to development. Therefore, an alternative target to take account of land use constraints has been prepared for consideration:

Monmouthshire Locally Owned Renewable Energy Generation by 2033
Target of 54MW of renewable energy generation being locally owned by 2033 (no constraints factored in) **Or** Target of 11MW of renewable energy generation being locally owned by 2033 (to take account of land use constraints including BMV agricultural land)

[6] WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (WG – June 2022 - https://www.gov.wales/sites/default/files/publications/2022-06/guidance-local-and-shared-ownership-of-energy-projects-in-wales_0.pdf)

Proposal 3: Monmouthshire Locally Owned Renewable Energy Generation Target

3.14. A resource based locally owned renewable energy target is the preferred approach. Two options have been prepared for discussion. An alternative approach could be to not have a target and rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership.

4. Next Steps for Stakeholder Engagement

4.1. The Welsh Government Toolkit suggests that the findings of the RLCEA should be tested and discussed with stakeholders. In accordance with the Toolkit, the Council is seeking input into the process of developing its renewable energy policies, including Local Search Areas and targets. This is planned to occur in two stages:

- Stage 1 – targeted stakeholder interviews from industry representatives undertaken by the Carbon Trust on behalf of the Council. This stage has been completed with the results of the interviews incorporated into this note.
- Stage 2 – two workshops, one for MCC Officers and other stakeholders and a second with MCC elected Members.

4.2. The results of the workshops will be used to inform the approach taken to targets and Local Search Areas in the Deposit RLDP.

Appendix 4 – Member Stakeholder Workshop Briefing Note

Monmouthshire Replacement Local Development Plan

Renewable and Low Carbon Energy Member Workshop Briefing Note (February 2024)

This Briefing Note provides information that will be discussed at the Council's Renewable Energy Workshops. The workshops will help to inform the Council's land use policies and proposals relating to renewable energy generation in Monmouthshire. A summary of proposals is set out below with further details provided from page 2 onwards.

Summary of Proposals – Full details are set out from page 2.

Proposal 1: The RLDP **does not allocate Local Search Areas** reflecting the prevalence of high-quality agricultural land in the County and Welsh Government's policy position on protecting Best and Most Versatile agricultural land, however, it will include a criteria-based policy for renewable energy proposals to be assessed against.

Proposal 2: To base the RLDP renewable energy targets on a percentage of resource available in the county for ground mounted solar and onshore wind consistent with national planning policy and align roof top solar PV and heat pumps targets with the RLDP growth levels. It is also proposed to incorporate a low and high range to the targets to allow for flexibility, constraints, and suitability factors.

Preferred Target Approach	Low Target MW (Power & Heat)	Low Target MWh p.a	High Target MW (Power & Heat)	High Target MWh p.a
Percentage of maximum theoretical resource for solar and onshore wind and alignment with the RLDP growth levels for roof top solar PV and heat pumps	137	151,000	250	248,564

Proposal 3: We proposed to rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership[1].

[1] WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (WG – June 2022 - https://www.gov.wales/sites/default/files/publications/2022-06/guidance-local-and-shared-ownership-of-energy-projects-in-wales_0.pdf)

Monmouthshire Replacement Local Development Plan

Renewable and Low Carbon Energy Member Workshop Briefing Note (February 2024)

Contents

Background Documents

- Monmouthshire Renewable and Low Carbon Energy Assessment (The Carbon Trust, Oct 2020) and Non-technical Summary.
- Monmouthshire Renewable and Low Carbon Energy Stakeholder Briefing Note – Targeted Interviews (December 2023) (to be published at Deposit Stage)
- Monmouthshire Engagement Report – December 2023 (to be published at Deposit stage)

1. Introduction

1.1. The purpose of this stakeholder engagement is to seek views from targeted organisations on the potential to identify Local Search Areas (LSAs) and renewable energy generation targets within the Replacement Local Development Plan (RLDP).

1.2. Monmouthshire County Council (MCC) is in the process of producing a RLDP to set out land use policies and allocations covering the period 2018-2033. Within this context, the RLDP needs to address and provide for clean growth and the decarbonisation of energy in line with national and local policy aspirations.

Developing an Evidence Base

1.3. To ensure this role is fulfilled, PPW12 places a requirement on planning authorities to develop an evidence base to inform the development of renewable and low carbon energy policies. The **Welsh Government's Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners** (Sept 2015)[2] is advocated within

[2]Practice Guidance: https://www.gov.wales/sites/default/files/publications/2018-09/renewable-energy-toolkit.pdf

PPW12 as an acceptable methodology for developing an evidence base to inform spatially based renewable energy policies and allocations for inclusion within the RLDP.

Evidence to date

1.4. **Monmouthshire's Renewable and Low Carbon Energy Assessment[3]** (RLCEA) was finalised in October 2020 and assesses the potential renewable energy resource within the county (excluding the Bannau Brycheiniog (Brecon Beacons) National Park (BBNP)) from the following technologies:

- Wind Energy
- Ground mounted solar photovoltaics (PV)
- Biomass energy
- Energy from waste/anaerobic digestion
- Hydropower energy
- Roof top solar photovoltaics (PV)
- Heat pumps

1.5. The study concludes that Monmouthshire has a theoretical resource to meet/offset approximately three times' its current[4] energy needs with renewable/low carbon energy generated within the county. In practice, the opportunities may be restricted by local and national energy infrastructure (grid capacity), competition with other land uses and issues such as landscape impact.

1.6. The results of the renewable energy assessment show that there is very high solar resource potential in the county and limited potential for wind and heat networks. Provisional geographical areas of less constrained land for ground mounted solar / onshore wind developments that may be suitable to inform the designation of Local Search Areas[5] (LSAs) for solar and wind development have been identified in the assessment. Several policy recommendations are provided as well as suggestions for further action.

1.7. To help inform potential policy options the Toolkit recommends undertaking targeted interviews to gain feedback from industry and key stakeholders to add to the evidence base. Four interviews were conducted by the Carbon Trust during December 2023 with representatives from the following organisations:

- Welsh Government – Planning Policy Branch
- Welsh Government – Landscapes, Nature and Forestry Division
- National Grid Electricity Distribution (NGED)
- Protium Green Solutions

[3] https://www.monmouthshire.gov.uk/app/uploads/2021/12/RLCEA-MCC-Report-Body-Version-1-1.pdf
[4] 2017 – the latest published data when preparing the study
[5] Preferred, broad, geographical area for development for solar PV. Agreed LSAs will be identified in the RLDP.

1.8. Key points from the interviews are noted at the end of Section 2 – Consideration of Local Search Areas in Monmouthshire and the Section 3 - Renewable Energy Targets for Monmouthshire.

2. Consideration of Local Search Areas in Monmouthshire

Purpose of Local Search Areas

2.1. Welsh Government's Renewable Energy Toolkit notes under section E4.3, that **"*a local authority should identify spatially, areas that may be particularly suitable for larger scale renewable energy development*" so that "*it sends an invitation to potential developers that the local authority is interested in seeing suitable development in those sites and that there is a greater likelihood of securing planning consent for applications in those areas*".**

2.2. PPW12 confirms this approach, stating that "planning authorities should assess the opportunities for renewable and low carbon energy in the area, and use this evidence to establish spatial policies in their development plan which identify the most appropriate locations for development of energy developments below 10MW. **There should be a presumption in favour of development in identified areas, including an acceptance of landscape change, with clear criteria-based policies setting out detailed locational issues to be considered at the planning application stage**" (5.9.14).

Identification of Less Constrained Areas of Land for Wind and Solar

2.3. In order to identify 'less constrained areas' of land potentially suitable for wind and solar resource, a number of constraints were excluded from consideration. These included environmental designations/landscape designations including the Wye Valley National Landscape, Special Area of Conservation (SAC) and Sites of Special Scientific Interest (SSSIs), heritage designations and infrastructure constraints such as proximity to railway tracks. A secondary exercise was also undertaken to remove all Best and Most Versatile (BMV) agricultural land from the initially identified areas to compare the potential resource levels in the County.

Updated Chapter 6 of PPW – Addressing the Nature Emergency through the Planning System

2.4. In October 2023 Welsh Government issued an update to Chapter 6 – Distinctive and Natural Places of PPW including further clarity on securing net benefit for bio-diversity through the application of the step-wise approach. Consistent with Chapter 6, statutory designations, such as SSSIs, RAMSAR sites, Special Protection Areas and Special Areas of Conservation were excluded from the search area from the outset. At this stage in the process, non-statutory designations such as Sites of Importance for Nature Conservation (SINCs) were not excluded due to the large number and dispersed nature of the designation. National and local policy framework allow for the step-wise approach to be applied to non-statutory designations at the site-specific stage.

Wind Results

2.5. The constraints assessment identifies just small areas of land in the study area as less constrained for wind developments. These are generally clustered in the most northerly part of the county and the most southerly part of the county. It is estimated this land could accommodate approximately 32 MW of wind capacity. This is considered a low resource capacity given the size of the study area. Having regard to the findings of the RLCEA and Future Wales, which does not identify any Pre-Assessed Areas for Wind within Monmouthshire, **the supportive criteria-based planning policy option is considered the most appropriate way forward for the RLDP in relation to wind.**

Solar Results

2.6. At a high-level, a very large proportion of land within Monmouthshire is theoretically suitable for ground mounted solar PV development. Although, it should be noted that it is unlikely that the full land area would be developed due to additional considerations including cumulative impact, landscape impact, allowance for hedgerows and woodland not included in the constraints assessment, grid capacity and competition with other land uses. However, to take account of further clarification from Welsh Government on the consideration of Best and Most Versatile Agricultural land in relation to solar farms as noted in paragraph 2.3 an exercise to exclude BMV land was undertaken. The potential resource reduces by approximately 80% if Best and Most Versatile Agricultural Land is excluded from the resource. Figures 1 and 2 illustrate the difference between the theoretical resource including and excluding BMV land. It can be seen that removing BMV land results in sparse distinct land parcels rather than broad areas.

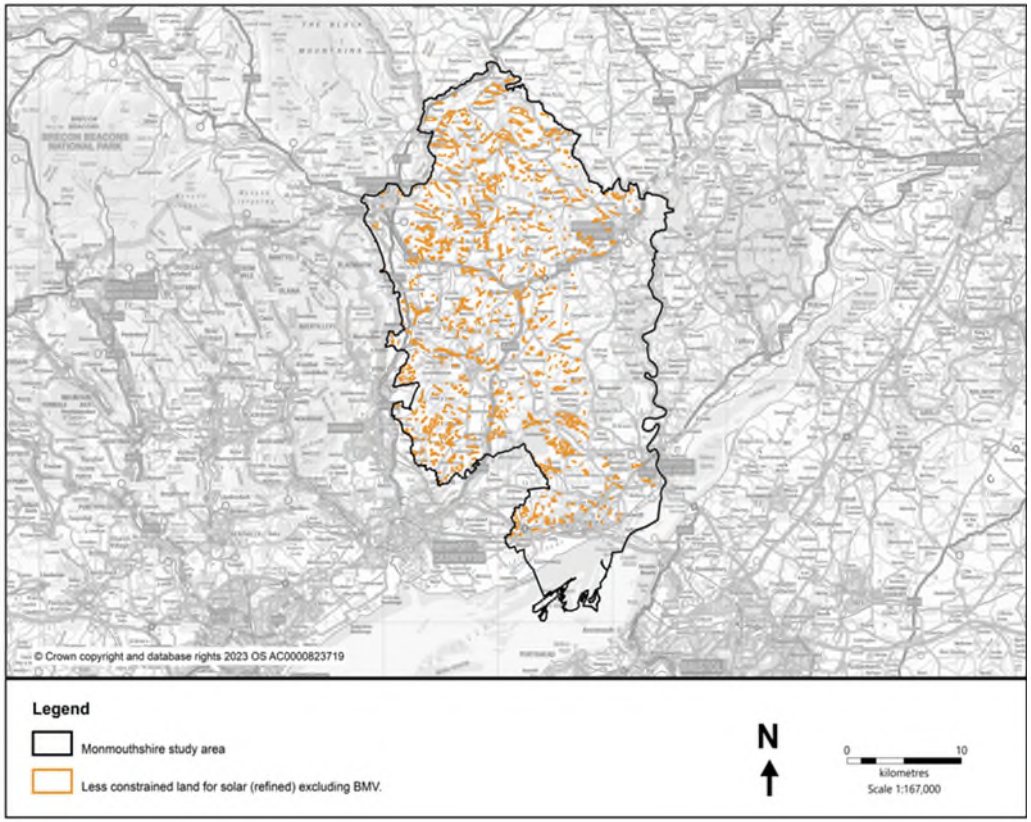


Figure 1: Less constrained land for solar with Best and Most Versatile Land excluded

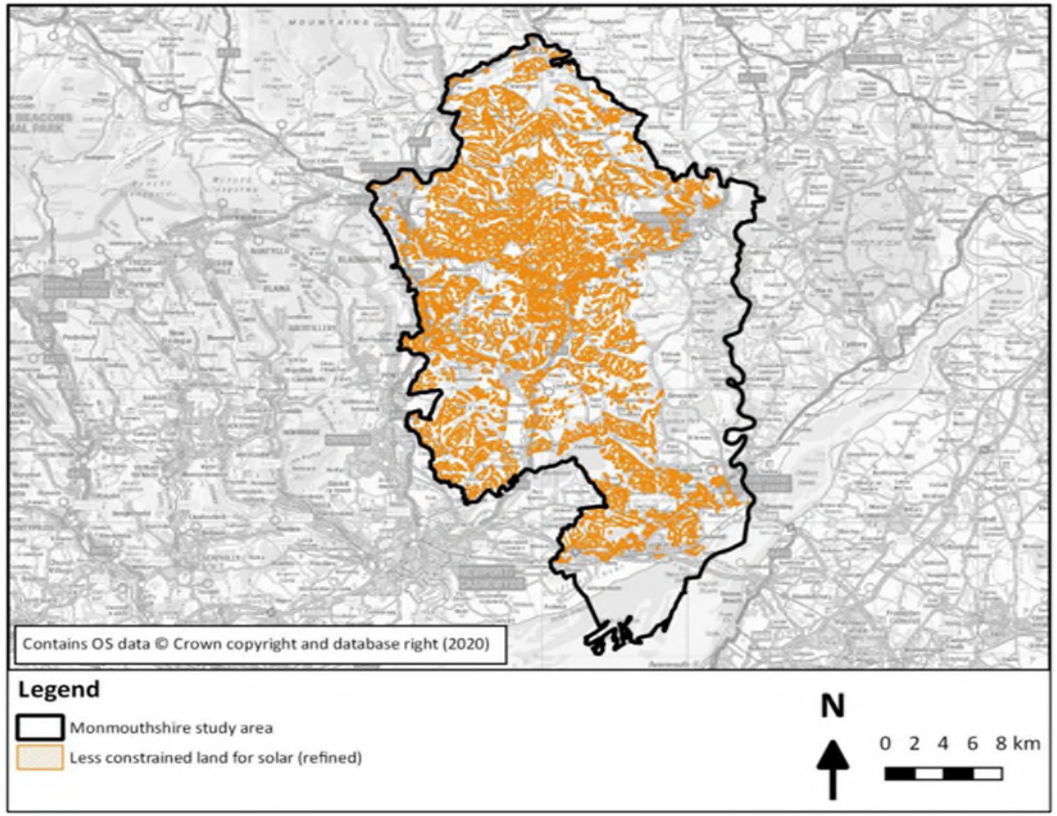


Figure 2: Less Constrained Land for solar including BMV land

Interview Feedback on Local Search Areas Options

2.7. Key points raised in relation to Local Search Areas during the interviews included:

- Welsh Government Policy Branch support a planning-led approach to land development and thus are supportive of local search areas as a starting point for site identification, however they acknowledge the difficulty of designating broad areas given the constraints associated with Monmouthshire.
- Welsh Government Landscapes, Forestry and Agriculture Division consider a sequential test approach, where sites are assessed individually on a case-by-case basis to consider impact on biodiversity, agricultural land, etc to be the best approach.
- National Grid Electricity Distribution (NGED) believe that local search areas seem reasonable but expect new generators to be connected across the network, rather than being focussed in certain areas. A potential risk of pre-assessed areas is that it may lead to a spike in applications in these areas, which without proper planning can have a negative impact on the network and the deployment of generators.
- Protium Green Solutions welcome local search areas as they would help incentivise developers to prioritise these areas. They would like to see more decision-making power at the local level in order to fast-track applications in these areas. However, they also acknowledged that they would not be discouraged from developing projects outside of the designated areas.

Proposal 1: Recommended RLDP Approach to Local Search Areas

2.8. Given the prevalence of high-quality agricultural land in the County, it is proposed that the RLDP **does not allocate Local Search Areas** reflecting Welsh Government's policy position on protected Best and Most Versatile agricultural land. However, it is proposed that a criteria-based policy to assess renewable energy proposals is included in the RLDP.

3. Consideration of Renewable Energy Targets for Monmouthshire

3.1. Having established an evidence base for an estimated maximum theoretical resource (EMTR) within the RLCEA, PPW12 requires LPAs to develop targets for renewable energy generation which can be incorporated into Local Development Plan policies and monitoring over the life of the plan period.

3.2. PPW12 states that local authorities should identify challenging, but achievable targets for renewable energy in local/regional plans and strategies or development plans. In order to identify a measurable target, which can be assessed and monitored, it should be expressed as an absolute energy installed capacity figure. This should be calculated from the resource potential of the area and should not relate to a local need for energy.

Monmouthshire Local Area Energy Plan (LAEP)

3.3. The Council is in the process of preparing a Local Area Energy Plan which considers the whole energy system in the county and the potential ways to move towards a net zero carbon energy system. This is broader than the work covered within the RLCEA which addresses specific land use requirements set out in the PPW12 for inclusion in in the RLDP. However, it is important that the two are consistent with each other. We will continue to monitor both processes to ensure the two align.

3.4. A range of potential renewable energy sources have been considered as part of the RLCEA. However, due to factors such as a relatively small resource, infrastructure restrictions or long-term contracts in place for dealing with waste, it is proposed that the RLDP will contain targets for ground mounted solar, onshore wind, roof top solar PV and heat pumps. Renewable energy sources that do not have a target will still be open to consideration as part of the planning application process.

Proposed Renewable Energy Targets: Target a certain proportion (X%) of maximum theoretical capacity - 5% of maximum theoretical capacity for solar resource and 10% of maximum theoretical capacity for other energy technologies.

3.5. This scenario has been refined from the starting point of 50% of maximum theoretical capacity, which resulted in particularly ambitious and challenging targets, predominantly due to the high solar resource identified. To take account of this a refined scenario with a low and high target range of 5% - 10% Estimated Maximum Theoretical Resource (EMTR) of solar resource and 10% - 20% EMTR of other technologies has been prepared, excluding BMV agricultural land to be consistent with the approach taken to Local Search Areas. The refined scenario is considered to provide an appropriate basis for establishing a target for the RLDP, reflecting competing land uses and other constraints such as landscape impact.

3.6. However, it should be noted that as the starting point for this scenario is the existing housing stock and industrial building in the County as well as proposed RLDP growth levels. The resultant targets are therefore beyond the scope of the RLDP as its policies will only apply to new development and not the existing housing and building stock.

Energy Technology	Estimated Maximum Theoretical Resource		Current Installed Capacity		Target Scenarios for renewable energy generation by 2033				Comments
					(5% solar - 10% others)		(10% solar – 20% others		
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Power									
Onshore Wind	32	76,000	0.3	700	3	7,000	6	14,000	2 – 4 small turbines
Ground Mounted Solar (excl. BMV land)	1,887	1,653,000	35	31,000	94	82,000	189	165,564	Equivalent to 165 or 331 ha
Roof Mounted Solar PV	138	121,000	14	12,000	14	12,000	28	24,000	Approximately 4,000 – 8,000 homes
Total Power				**43,7000**	**111**	**101,000**	**223**	**203,564**	
Heat									
Heat Pumps	503	883,000	4	6,000	50	88,000	100	176,000	Approximately 5,000 – 10,000 homes
Total Heat				**6,000**	**50**	**88,000**	**100**	**176,000**	
Total Heat and Power				**49,7000**	**161**	**189,000**	**323**	**379,564**	

Table 1: 5% of maximum theoretical capacity for solar resource and 10% of maximum theoretical capacity for other energy technologies.

Alternative approach to the Roof Mounted Solar PV and Heat Pumps Targets

3.7. This target relates specifically to the roof mounted solar generation and installation of heat pumps to take account of the scope of buildings that will fall within the remit of the RLDP policies. As noted in paragraph 3.6, the RLDP policies will only apply to new development and therefore establishing a target that relates to the existing building stock as well as new development will be undeliverable from a RLDP perspective and is considered to be more appropriately set through the LAEP. However, given the Council's commitment to deliver net zero homes a target specifically linked to the RLDP proposed growth levels is considered to be a valid alternative.

3.8. The RLDP proposes to make provision for 6,210 homes (including a 15% flexibility allowance) to meet a housing requirement of 5,400 and provide a minimum of 38ha of employment land. However, as the plan period runs from 2018, approximately 3,000 homes have already been built or agreed via the planning application system. The low and high targets noted in Table 2 therefore reflect an element of flexibility to allow for

delivery rates and a suitability factor for roof top solar and heat pumps to be considered, e.g. not all new properties are suitable for solar panels due to orientation etc.

Energy Technology	Estimated Maximum Theoretical Resource		Current Installed Capacity		Target Scenarios for renewable energy generation by 2033				Comments
					Low Target		High Target		
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	
Power									
Onshore Wind	32	76,000	0.3	700	3	7,000	6	14,000	2 – 4 small turbines
Ground Mounted Solar (excl. BMV land)	1,887	1,653,000	35	31,000	94	82,000	189	165,564	Equivalent to 165 or 331 ha
Roof Mounted Solar PV (realigned with the RLDP)	138	121,000	14	12,000	10	9,000	15	13,000	Approximately 2,500 – 3,000 homes and suitable employment
Total Power				**43,7000**	**107**	**98,000**	**210**	**178,564**	
Heat									
Heat Pumps (realigned with the RLDP)	503	883,000	4	6,000	30	53,000	40	70,000	Approximately 2,500 – 3,000 homes and suitable employment
Total Heat				**6,000**	**30**	**53,000**	**40**	**70,000**	
Total Heat and Power				**49,7000**	**137**	**151,000**	**250**	**248,564**	

Table 2: Revised Roof Mounted Solar PV and Heat Pumps to align with RLDP growth levels

Interview Feedback on Renewable Energy Targets

3.9. Key points raised during the interviews in relation to potential renewable energy targets included:

- Welsh Government Planning Policy Branch noted that the starting point should always be what resources are available, followed by consideration of what can be achieved in the Plan period, grid capacity, national targets and any new issues in national planning policy.
- Welsh Government Landscapes, Forestry and Agriculture Division noted that local (or national) targets should not be used as a justification to build on BMV land.
- National Grid Electricity Distribution (NGED) noted that renewable energy targets should be based on resource available and standard criteria in the region. Parallel to this bottom-up approach, WG need to look at the energy

system from a top-down perspective to make sure that all of Wales's targets can be met.

- Protium Green Solutions noted that MCC should consider what the intention of setting a renewable energy target is and there is no benefit to setting unachievable targets. More could be done to support off-grid opportunities.

Proposal 2: Recommended RLDP Approach to Renewable Energy Targets

3.10. The preferred approach is to base renewable energy targets for inclusion in the RLDP on a percentage of resource available in the county for ground mounted solar PV and onshore wind consistent with national planning policy and align roof top solar PV and heat pumps targets with the RLDP growth levels. This combination is considered to provide an appropriate basis for the targets with the possibility to incorporate a low and high target range in the RLDP.

Sub- Target - Local Ownership Targets

3.11. Welsh Government has set a target for 1.5GW of renewable electricity and heat capacity to be locally owned by 2035[6]. Paragraph 5.9.24 of PPW goes on to state that Welsh Government has an expectation for all new renewable energy projects in Wales to include at least an element of local ownership. The RLCEA therefore considers whether the RLDP should include a local ownership sub-target.

Welsh Government's Definition of Locally Owned

Energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales.

3.12. The RLCEA considers two approaches to establishing a locally owned renewable energy target. The first based on the proportion of Wales' population in Monmouthshire and secondly based on the proportion of Wales' land area in the study area. The second option is preferred as a basis to establish a target as this relates more to the available resource rather than demand and is therefore consistent with national policy. Three options have been considered as part of the process:

- Sub-target of 54MW of renewable energy generation being locally owned by 2033. The target relates to the total land area of Monmouthshire as a proportion of the land area of Wales without considering any particular constraints to development.
- Sub-target of 11MW of renewable energy generation being locally owned by 2033 to take account of land use constraints including BMV agricultural land.
- Do not have a target and rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership.

[6] WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (WG – June 2022 - https://www.gov.wales/sites/default/files/publications/2022-06/guidance-local-and-shared-ownership-of-energy-projects-in-wales_0.pdf)

Proposal 3: Monmouthshire Locally Owned Renewable Energy Generation Target

3.13. Relying on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership is the preferred option.

4. Next Steps for Stakeholder Engagement

4.1. The Welsh Government Toolkit suggests that the findings of the RLCEA should be tested and discussed with stakeholders. In accordance with the Toolkit, the Council is seeking input into the process of developing its renewable energy policies, including Local Search Areas and targets. This is planned to occur in two stages:

- Stage 1 – targeted stakeholder interviews from industry representatives undertaken by the Carbon Trust on behalf of the Council. This stage has been completed with the results of the interviews incorporated into this note.
- Stage 2 – two workshops, one for MCC Officers and other stakeholders and a second with MCC elected Members.

4.2. The results of the workshops will be used to inform the approach taken to targets and Local Search Areas in the Deposit RLDP.

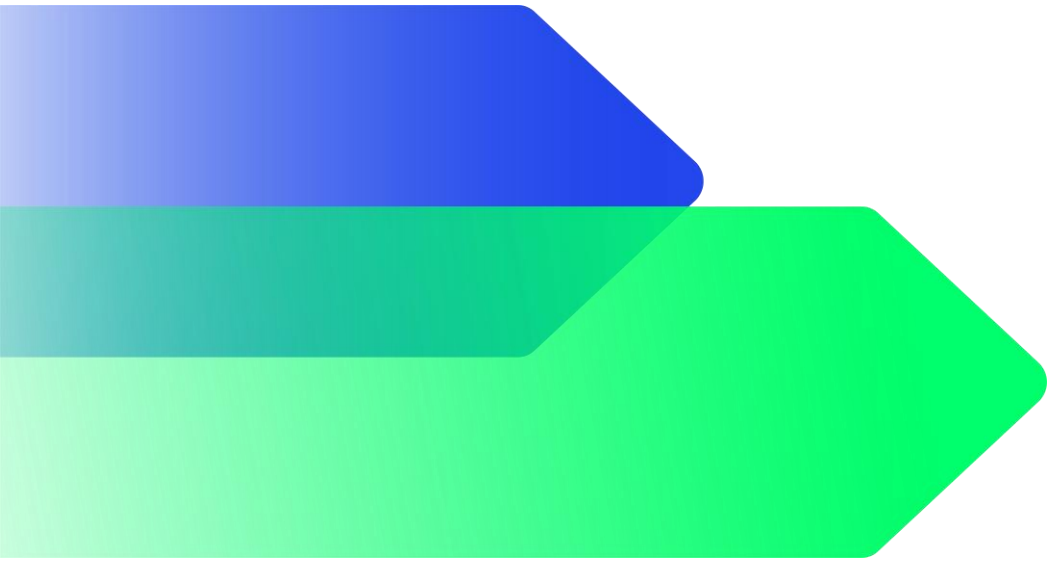
Appendix 5 – Stakeholder/Member Engagement Report - Workshops

REPORT

Monmouthshire County Council: Renewable and Low Carbon Energy Planning Policy Stakeholder Engagement

Stage 2: Stakeholder Workshops

March 2024



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Acknowledgments

The Carbon Trust prepared this report based on feedback from two separate online workshops, one held with Monmouthshire County Council Elected Members, and one with Local Authority Officers and external stakeholders.

The Carbon Trust would like to thank everyone who has contributed their time and expertise during the preparation and completion of this report. Special thanks go to representatives of:

- Monmouthshire County Council Elected Members
- Monmouthshire County Council Officers
- Torfaen County Council
- Protium Green Solutions

Table of Contents

1. Introduction

Monmouthshire County Council (MCC) is in the process of producing a Replacement Local Development Plan (RLDP) to set out land use policies covering the period 2018-2033. Within this context, the RLDP needs to address and provide planning support for clean growth and the decarbonisation of energy.

MCC's Renewable and Low Carbon Energy Assessment (RLCEA), produced by the Carbon Trust in 2020 (Carbon Trust, 2020) provided the evidence base for this work, and found that:

- Monmouthshire has a massive ground-mounted solar resource, totalling 8,279MW, and is the resource most likely to be deployed.
- Monmouthshire has minimal wind resource, totalling approximately 32MW of available capacity.
- the heat decarbonisation pathway is still uncertain.

MCC can theoretically produce three times its current energy demand and approximately 20 times its current electricity demand from renewable and low carbon sources. The practical resource that will be exploited is likely to be less than the resource identified due to grid capacity, competition with other land use and issues such as landscape impact and high-quality agricultural land. As part of the RLDP preparation activities, MCC are engaging with relevant stakeholders in order to test, review and refine the Renewable Energy Policy Options and Recommendations contained within the RLCEA. This engagement will inform renewable and low carbon energy policy and targets within the RLDP.

The stakeholder engagement is facilitated as a two-stage process:

1. Stakeholder interviews with key organisations involved in the local renewable energy sector.
2. A series of workshops with a wider group of stakeholders to discuss the RLCEA findings and recommendations refined by the findings from the stakeholder interviews.

This document summarises the outcomes from stage 2, the stakeholder workshops, which were facilitated by Carbon Trust in February 2024.

2. Workshop Aims and Structure

2.1. Workshop Aims

The workshops specifically sought to gain feedback from relevant stakeholders on three policy proposals set out in the briefing note, prepared by MCC using the findings of the RLCEA (Carbon Trust, 2020) and subsequent stakeholder interviews, which was circulated to attendees prior to the workshops:

- **Proposal 1**: Given the prevalence of high-quality agricultural land in the County, it is proposed that the RLDP does not allocate Local Search Areas (LSAs) reflecting Welsh Government's policy position on protected Best and Most Versatile (BMV) agricultural land. However, it is proposed that a criteria-based policy to assess renewable energy proposals is included in the RLDP.

- **Proposal 2**: The preferred approach is to base renewable energy targets for inclusion in the RLDP on a percentage of resource available in the County for ground mounted solar PV and onshore wind, consistent with national planning policy, and align roof top solar PV and heat pump targets with the RLDP growth levels. This combination is considered to provide an appropriate basis for the targets with the possibility to incorporate a low and high target range in the RLDP.

Preferred Target Approach	**Low Target MW (Power & Heat)**	**Low Target MWh p.a**	**High Target MW (Power & Heat)**	**High Target MWh p.a**
Percentage of maximum theoretical resource for solar and onshore wind, and alignment with the RLDP growth levels for roof top solar PV and heat pumps	137	151,000	250	248,564

- **Proposal 3**: Instead of setting fixed local ownership targets, it is proposed to rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership[1].

2.2. Invitees

A wide range of stakeholders were invited to attend the workshops. Groups represented included:

- MCC Elected Members
- Local Authority Officers
- Private Developers

[1] WG definition of 'locally owned installations' – energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales. (Welsh Government, 2022b)

2.3. Workshop Structure

The first workshop, with external stakeholders, was held on the 20th of February 2024. The second workshop, with Elected Council Members, was held on the 27th of February 2024. Both sessions were recorded.

The hour-long workshops were structured to allow all members to raise comments on each of the three proposals outlined above, and an agenda was provided ahead of the workshops:

1. **Introduction**: Presenting the project and introducing the background work undertaken by The Carbon Trust (10 mins)
2. **Proposal 1**: Local Search Areas (15 mins)
3. **Proposal 2**: Renewable energy targets (15 mins)
4. **Proposal 3**: Local ownership targets (15 mins)
5. **Conclusion**: Final comments from attendees and concluding remarks from The Carbon Trust on next steps (5 mins)

3. Workshop Summaries

3.1. Proposal 1: Local Search Areas

Context

Given the prevalence of high-quality agricultural land in the County, it is proposed that **the RLDP does not allocate Local Search Areas (LSAs)** reflecting Welsh Government's policy position on protected Best and Most Versatile (BMV) agricultural land (Welsh Government, 2022a). However, it is proposed that a **criteria-based policy to assess renewable energy proposals is included in the RLDP**.

As part of the Renewable and Low Carbon Energy Assessment (RLCEA), less-constrained areas for wind and solar development were initially identified, however it was found that land areas suitable for wind development in the county were very limited, and due to the spread of BMV agricultural land across the County it is difficult to allocate broad areas for ground mounted solar PV developments.

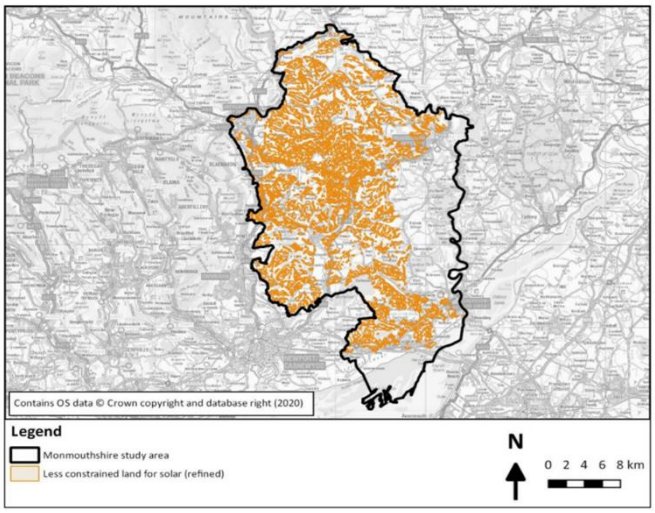

Figure 1 - Less constrained land for solar including BMV land.

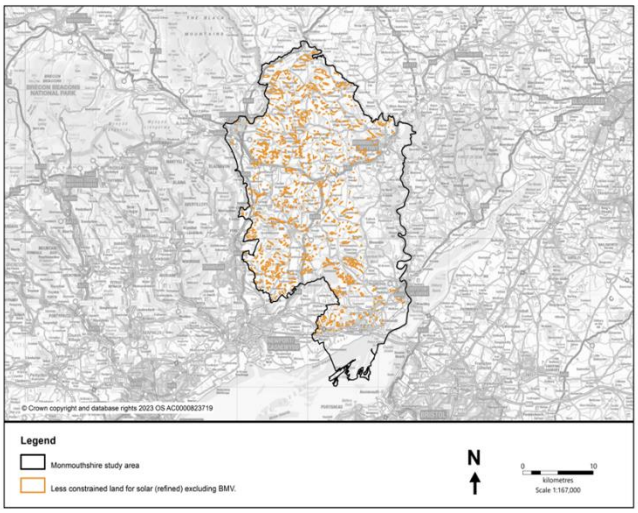

Figure 2 - Less constrained land for solar with excluding BMV land.

Extended Stakeholder Session

Ian Hoccom raised the point that he still feels like Local Authorities are getting conflicting messages from Welsh Government regarding developing on BMV land and would like to know more about what a criteria-based assessment looks like. There is some concern that a strict criteria-based assessment could significantly hinder the number of projects accepted for planning. **Ian Hoccom** wondered if any other constraints had been taken into consideration when deciding on the LSAs, such as areas of high demand or grid constraints, and whether project viability should be taken into account as well.

As outlined in the RLCEA (Carbon Trust, 2020), a high-level constraints assessment was undertaken to account for other constraints, such as Areas of Outstanding Natural Beauty (AONBs) and other important designations. Grid capacity, LANDMAP classifications and zones of high BMV concentration

were also considered during the ranking and prioritisation of LSAs. The decision to exclude LSAs due to BMV was influenced by Welsh Government, who were clear in their stance that developers need to demonstrate that they have done everything they can to minimise the impacts on BMV land. Ultimately, MCC did not feel like LSAs would give developers enough certainty based on the prevalence and distribution of BMV land across the Council.

Ian Hoccom reiterated that developers will also look at areas based on demand and business case viability, and that any criteria-based policy will need to provide clear guidance on what is required for a successful planning application. **Susan Hall** suggested that a sequential test approach, as recommended by the Welsh Government Landscapes, Nature and Forestry Division, might be the best way to allow developers to demonstrate they've done everything they can to minimise impacts on BMV land and considered alternatives.

Rachel Standfield raised concerns on how MCC are assessing competing demands, and wondered if the BMV issue could be approached in reverse, where priorities are first assessed before looking at BMV land. With regards to the LSAs, **Rachel Standfield** feels like MCC will need a robust argument for why they believe not assigning LSAs is the best approach, and questions whether developers will interpret this decision as all of MCC being considered a LSA.

Elected Members Session

Louise Brown sought clarification that wind developments are likely to be unsuitable, and solar developments are more likely to be small developments (sub-10MW) rather than large areas. **Louise Brown** raised a concern about ensuring landscaping is considered to minimise visual impact and glare. **Faizi Freemantle** highlighted the fact that all planning applications would need to consider landscape impacts as each application would be assessed on its individual merits.

Ian Chandler questioned how much of an additional barrier the absence of LSAs would be for developers in the planning application process. **Susan Hall** responded that the absence of LSAs is not an additional barrier. Planning considerations, which are currently based on a criteria-based policy, will continue to function as they currently do. Feedback from the stakeholder interviews (stage 1) indicated that a site being outside a LSA would not necessarily put a developer off submitting a planning application. The purpose of LSAs is a certainty of development, however MCC's constraints, notably BMV land, make this approach unsuitable.

Dale Rooke raised a query about what the planning process would be for a larger development (10+ MW). **Susan Hall** responded that these applications would be determined by the Planning Inspectorate and Minister through a developments of national significance (DNS) process. MCC wouldn't determine the outcome of the planning application but would be a statutory consultee.

Catrin Maby requested a clarification around the approximate amount of land required for 1MW solar PV. An approximate conversion is that 1.75 hectares of land are needed for 1MW of solar PV.

3.2. Proposal 2: Renewable Energy Targets

Context

The preferred approach is to base renewable energy targets for inclusion in the RLDP on a **percentage of resource available in the county for ground mounted solar PV and onshore wind** consistent with national planning policy and **align roof top solar PV and heat pumps targets with the RLDP growth levels**. This combination is considered to provide a reasonable basis for the targets with the possibility to incorporate a low and high target range in the RLDP.

Energy Technology	Estimated Maximum Theoretical Resource		Current Installed Capacity		Target Scenarios for renewable energy generation by 2033			
					Low Target		High Target	
	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.	MW	MWh p.a.
Power								
Onshore Wind	32	76,000	0.3	700	3	7,000	6	14,000
Ground Mounted Solar (excl. BMV land)	1,887	1,653,000	35	31,000	94	82,000	189	165,564
Roof Mounted Solar PV	138	121,000	14	12,000	10	9,000	15	13,000
Total Power				43,700	107	98,000	210	178,564
Heat								
Heat Pumps	503	883,000	4	6,000	30	53,000	40	70,000
Total Heat and Power				**49,700**	**137**	**151,000**	**250**	**248,564**

Extended Stakeholder Session

Ian Hoccom and **Rachel Standfield** raised the point that there is a vast difference in these proposed targets compared to preliminary results from MCC's Local Area Energy Plan (LAEP), due to be published later this year.

Despite the fact that the RLDP targets are only until 2033, compared with the 2050 targets of the LAEP, **Ian Hoccom** still finds the contrast in scale slightly concerning and highlights the risk that MCC may require an exponential ramp-up of renewables deployment between 2033-2050.

Susan Hall reiterated that Welsh Government advise setting ambitious but also achievable targets. MCC have had to consider cumulative impact risk and the planning application process in devising these figures, and re-emphasised that the RLDP period already began in 2018, so MCC are more than a third of the way through the period already. **Susan Hall** acknowledged that there is still uncertainty around future guidance to be published by the Welsh Government, including the outputs of the LAEP work, however the purpose of the RLDP targets is to assess what can be rapidly delivered through changes in land use

and new developments across MCC. Communicating the differences between this work and the LAEP, including their purposes and associated targets, will be imperative.

Following the workshop, **Luke McLaughlin** provided some additional context on the LAEP process: Unlike the renewable energy targets proposed in the RLDP, which should be seen as “ambitious but achievable”, the LAEP optimisation models are theoretical and show what a future system could look, driven by minimising cost and maximising carbon savings. None of the optimisation models represent the "final plan", and instead should help to identify the key barriers to achieve Net Zero by 2050 across the local energy system, not just renewable energy generation.

One important aspect of the LAEP is the analysis of multiple scenarios (e.g.: high demand, low demand etc.), which will ultimately present the LA with various pathways to achieve Net Zero by 2050. MCC’s actual path to Net Zero will probably not follow any exact trajectory, but instead be a mix of the different scenarios presented.

Due to the vast number of variables and assumptions in the LAEP, MCC should not consider the renewable generation results from the LAEP as fixed targets. Instead, the LAEP outputs should support MCC in identifying key opportunities and barriers on the journey to Net Zero and provide guidance on the investment required from now until 2050 to ensure a successful rollout of low carbon technologies, including solar PV, air source heat pumps, and electric vehicles, among others.

The LAEPs should also be seen as an ongoing piece of work, with subsequent LAEPs continuing to refine MCC’s pathway to Net Zero.

Elected Members Session

Simon Howarth raised a concern about how the currently installed capacity from existing projects is measured, notably regarding several hydropower schemes around the river Usk and river Clydach. **Simon Howarth** questions if the generation from these schemes will be taken into consideration, and what the approach is to collecting data on technologies already installed, to accurately assess how much renewable energy is currently being generated in Monmouthshire. This will need oversight due to the large number of private developers and lack of centralised data. When setting and tracking the proposed targets, how can MCC be certain of how many projects are already installed, and how many are currently being built? There were additional concerns around grid capacity limiting new developments, and the difficulty of EV adoption due to a lack of charging infrastructure in rural areas. The visual impact associated with the widespread adoption of roof-mounted PV developments was also raised as a concern.

Faizi Freemantle acknowledged the concerns around tracking progress against targets but clarified that while technologies other than solar and wind were considered in the RLCEA (Carbon Trust, 2020), the outcome of the assessment (including feedback from Natural Resources Wales) was that there was not significant additional potential for hydropower. Distributed Network Operators (DNOs) are also implementing new measures to manage connection delays, such as a new queue management processes to free up capacity in the network.

Ian Chandler stated that theoretical targets are not necessarily a sensible approach and are difficult to understand. The ground-mounted solar target seems low given this is being proposed as the primary renewable technology. The roof-mounted target also seems low relative to the currently installed capacity (in fact the low target is lower than the current installed capacity so clarification was sought on whether the targets in general are relating to only new generation or an overall target), and that there

seems to be a lack of ambition in the targets (i.e. a ten-fold increase in wind capacity vs a three-fold in solar capacity).

Faizi responded that the high uptake in wind, relative to the currently installed wind capacity, reflects an increase in wind turbine capacities. With modern turbines, 3-6MW of capacity could be installed with as few as 1-2 turbines.

Susan Hall also clarified that the roof-mounted PV target is only for additional capacity and acknowledged that this needs to be made clearer in the tables, and the ambition for rooftop solar PV only relates to new developments, as the RLDP cannot influence the retrofitting of existing buildings which was raised by **Emma Bryn** and **Catherine Fookes** as a concern. **Susan Hall** acknowledged the comments and explained that this uncertainty was a reason to include a high and a low target. The high target is more ambitious but it may not be achievable as the RLDP period ends in 2033. Furthermore, the interviews with Welsh Government and developers demonstrated that the risk of planning application delays or refusals due to cumulative impact, landscape impacts and/or grid congestion must be given considerable weighting.

Louise Brown posed a question around the scale of the developments being proposed to meet these targets i.e. how many separate solar farms will be required to reach the high or low target. **Louise Brown** believes that the low target may still be a challenge to achieve. **Faizi Freemantle** responded by explaining ground-mounted solar PV projects could range from sub-1MW up to 10MW or more, which makes it hard to consider the targets in terms of number of projects. Instead, the target should be considered in terms of total installed capacity or land coverage.

Louise Brown wondered if it is realistic to assume that developers will agree to installing heat pumps and roof-mounted solar PV panels on all new buildings. **Susan** Hall explained that of the 6000 new dwellings which were proposed in the RLDP, 3000 have already been built, or currently are being built. Hence, these proposals relate to the remaining dwellings to be built.

Faizi Freemantle explained that when estimating the maximum heat pump and roof-mounted solar PV resource, it was assumed that only 85% of the new developments could accommodate solar panels on the roofs. **Catrin Maby** emphasised that most new homes will be required to be net zero carbon and would therefore be required to accommodate low carbon technologies. She also highlighted the point that air source heat pumps are not renewable energy but rather a user of electricity, which won't always be renewable electricity.

Catherine Fookes raised a question if SSSIs had been considered in the initial study. **Faizi Freemantle** confirmed they had been considered as a constraint, and that the targets based on the available resource reflected this. **Catherine Fookes** also asked how the retrofitting of existing homes was considered in the estimation of available resource. **Faizi Freemantle** explained that this was considered, but lower % values were assumed compared to the newbuilds, see Figure 3. **Susan Hall** reinforced the point that these targets only relate to new developments.

Rooftop suitability (%)	Existing buildings	New developments
Household	25%	85%
Commercial	40%	Non-domestic building numbers are assumed to remain static across the replacement LDP period. Non-domestic buildings on RLDP strategic development sites are to be considered separately, when the sites are identified.
Industrial	80%	

Figure 3 - Summary of rooftop solar PV suitability assumptions (The Carbon Trust, 2020)

3.3. Proposal 3: Local Ownership Targets

Context

Welsh Government has set a target for 1.5GW of renewable electricity and heat capacity to be locally owned by 2035 (Welsh Government, 2023).

The RLCEA considers two approaches to establishing a locally owned renewable energy target. The first is based on the **proportion of Wales' population** in Monmouthshire and the second is based on the **proportion of Wales' land area** in the study area without considering any particular constraints to development. The **second option would be more suitable as a basis to establish a target** as this relates more to the available resource rather than demand and is therefore consistent with national policy. This approach results in a target of **54MW** using the new increased 1.5GW target, or a reduced target of **11MW** to account for the significant coverage of BMV land.

Option 1: Target of 54MW of renewable energy generation being locally owned by 2033.

Option 2: Target of 11MW of renewable energy generation being locally owned by 2033.

During the first workshop with extended stakeholders, an alternative option was also presented, to **not have a target** and rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership, as per Planning Policy Wales 12 (Welsh Government, 2024). Following comments from this first workshop, Option 3 was presented as the preferred option during the second workshop with Elected Council Members.

Option 3: Do not have a target and rely on national policy guidance's expectation that all new renewable energy projects incorporate an element of local ownership. **(Preferred Option)**

Extended Stakeholder Session

Rachel Standfield highlighted that when Torfaen Country Borough Council (TCBC) held similar workshops in 2021, Welsh Government stated that while they admired the initiative of local ownership targets, they did not anticipate that the national target of 1.5GW of locally owned renewables by 2035 to be translated to a Local Authority level. They questioned the need for it and stated that they didn't see it as a requirement.

If MCC sets a target, **Rachel Standfield** proposes the 11MW, rather than the 54MW target, so that it can be realistically achieved. If MCC want to be more ambitious, they could phrase it as a "minimum" target.

Ian Hoccom believes it is sensible to not set a target but agrees with the point on local ownership. This point was not disputed by any other invitees.

Susan Hall mentioned that one key challenge lies in the definition of "local ownership". Welsh Government have provided guidance on what they define as local ownership, but it is broad and there are still some instances where it might be hard to navigate (e.g. a project might be considered as having an element of local ownership if it is developed by a company that is based in another part of the world, as long as they have an office in Wales). The definition of "locally owned" might cause challenges down the line and will need to be communicated clearly.

"Energy installations, located in Wales, which are owned by one or more individuals or organisations wholly owned and based in Wales, or organisations whose principal headquarters are located in Wales." – Welsh Government's definition of Locally Owned (Welsh Government, 2022b)

Elected Members Session

Ian Chandler raised a concern that local ownership can result in no benefits for the local community and would hope that community ownership is considered. This is reflective of the broad definition of local ownership adopted by Welsh government and aligns with points raised in the first workshop.

Louise Brown supported these sentiments, and believed an absence of community benefits could mean less support from local community for developments (e.g. schemes that offer energy bill discounts, community benefit funds). The developer may propose these, but this is not part of the current proposal. If "local ownership" just means a scheme can be owned by a local company with no community involvement, the benefits may not be felt where it's needed most.

Catrin Maby also agrees that residents are more likely to engage and support community developments and asked if there are any RLDPs that have specified a target for a community ownership/community renewable capacity target.

Generally, the discussion was primarily focussed on the benefits and risks of community ownership and no specific objections were made to the proposal to not set a local ownership target.

4. Conclusions

Proposal 1: Local Search Areas

- Generally, there was no disagreement with the recommendation to not include LSAs due to the widespread presence of BMV land across Monmouthshire.

- While the majority of stakeholders accepted Welsh Government's clarification regarding developing on BMV land, some did raise concerns that the guidance provided by Welsh Government is still too vague.

- Discussions on how not including LSAs will be perceived by developers and Welsh Government were present during both workshops. One stakeholder raised the point that if MCC does not designate any LSAs, developers could interpret this as the whole of the county area being a LSA, and whether MCC want to align with this interpretation. Others questioned if it would provide additional planning barriers to developers.

- Stakeholders questioned what a criteria-based policy would look like, and how this could be designed to incentivise developments and ensure that planning applications are successful. Delays to the planning process due to unclear guidance is unfavourable for developers, MCC and Welsh Government, and therefore considerable thought should be given to how the criteria-based policy is worded.

Proposal 2: Renewable energy targets

- There was some general confusion around the estimated theoretical resource and the generation targets, particularly in the Elected Members session. As a result MCC will need to edit the tables to clearer which targets are for additional capacity and which are for total cumulative capacity including the current installed capacities. In both sessions, there was some uncertainty and disagreement around whether building integrated renewables targets (particularly rooftop PV) should only apply to new developments or include retrofit to existing buildings.

- Multiple stakeholders raised concerns regarding the large difference in the proposed RLDP renewable energy targets, and the preliminary results of Monmouthshire's LAEP. Monmouthshire should consider how the LAEP outputs will influence the RLDP targets and will need to be clear when communicating why the LAEP figures have/haven't been considered in setting the RLDP targets.

- One stakeholder raised a concern about how MCC plan on effectively tracking their renewable energy targets without the presence of a centralised database. The generation from existing projects needs to be captured or else MCC risk not having a comprehensive picture of all the operational renewable energy generators.

- Generally, stakeholders appreciated the need for ambitious targets but raised concerns of not achieving this target due to visual impact, BMV land and grid congestion.

Proposal 3: Local ownership targets

- According to one stakeholder, Welsh Government do not expect their target of 1.5GW of locally owned renewables by 2035 to be translated to the LA-level.

- Amongst external stakeholders, adopting the lower target (11MW), or not setting a target, were the preferred approaches. Amongst the Elected Members, there was no feedback on the proposed targets but also no objection to the proposed approach of not setting a target. Instead, the discussion was focussed on the benefits and risks of local ownership. There was general agreement that it is more important to focus on ensuring local ownership benefits the community rather than setting targets.

- The vague language from Welsh Government might mean that even with projects requiring an element of local ownership, it may be large developers who benefit the most. Stakeholders felt strongly about a need for clarification to ensure that renewable energy projects would benefit the local community.

5. References

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Published in the UK: 2024

Appendix 6 – Strategic Site Assessments

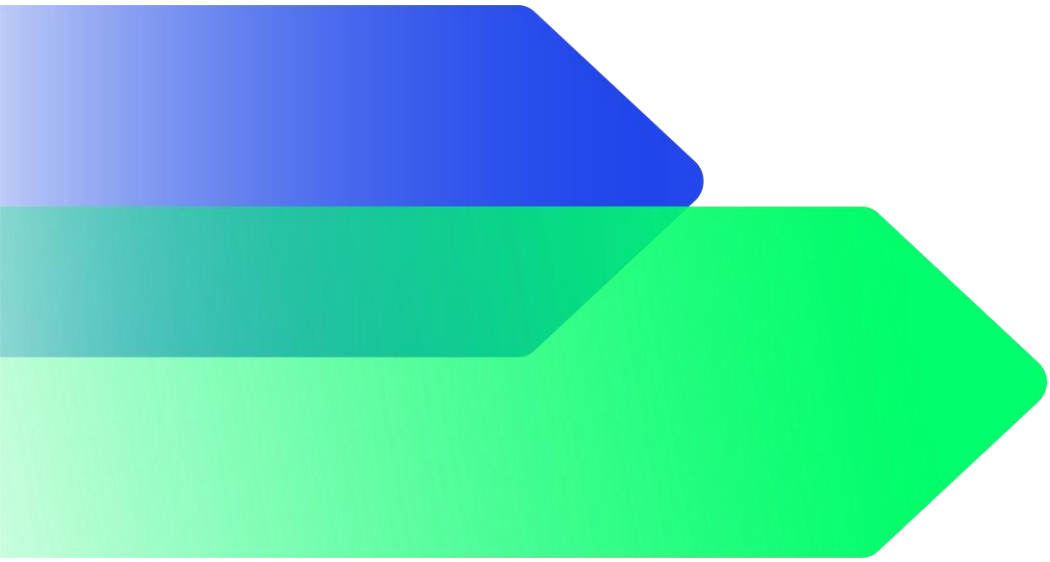
CARBON TRUST

FINAL REPORT

Renewable and Low Carbon Energy Assessment

Strategic Site Assessment for Monmouthshire County Council

8th December 2023



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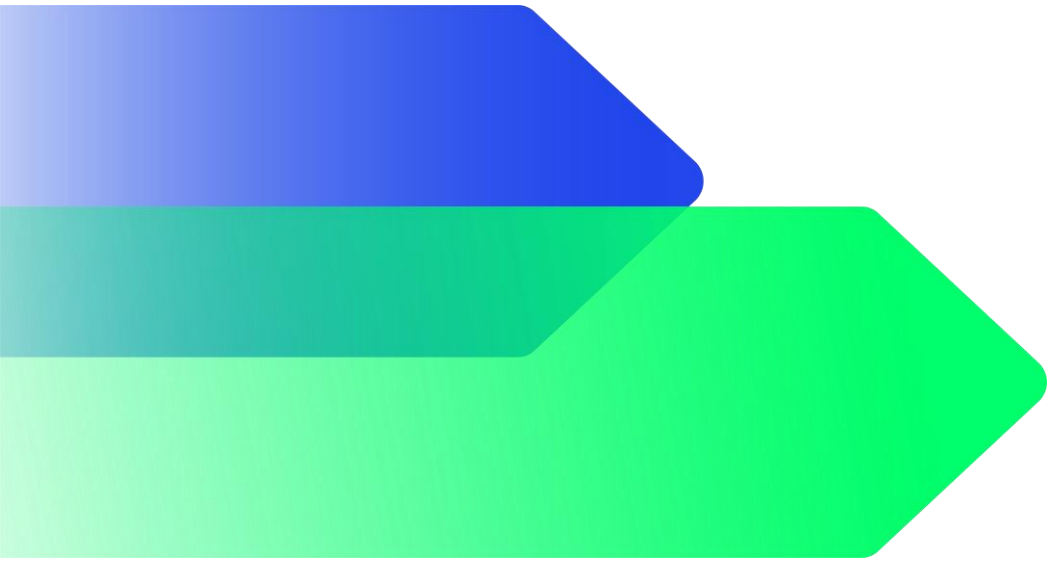

Contents

Glossary

BEIS	Department for Business, Energy & Industrial Strategy
BSP	Bulk supply point
CIBSE	Chartered Institution of Building Services Engineers
DECC	Department of Energy & Climate Change
EPC	Energy Performance Certificate
IEA	International Energy Agency
LDP	Local Development Plan
MCC	Monmouthshire County Council
NGED	National Grid Electricity Distribution
PV	Photovoltaic
RLCEA	Renewable and Low Carbon Energy Assessment
RLDP	Replacement Local Development Plan

1.1 Introduction

1.1.1 The Toolkit (Welsh Government, 2015) suggests that local authorities consider the integration of renewable energy into strategic developments within the Local Development Plan (LDP). Welsh Government has an ambition to reduce the carbon emissions associated with new developments from 2020 onwards. This carbon reduction is expected to be achieved through a mixture of high fabric efficiency alongside low carbon heating and/or renewables (Welsh Government, 2019a). Integration of renewable energy is most likely to be achieved on an individual building level through installation of roof-top solar PV but may also be achieved via private networks connected to local wind turbines or solar farms. This document sets out the results of running through the process provided in the Toolkit, which at a high level involves calculating the energy demand of the proposed sites, then analysing the feasibility of meeting this demand with low carbon energy sources. This includes both low carbon electricity sources (on-site rooftop PV or connecting to off-site nearby solar PV or wind farms) and heat networks to meet heating demand.

1.1.2 Monmouthshire County Council (MCC) has provided details of 5 Candidate Sites under consideration for allocation as Strategic Development Sites in the replacement LDP (RLDP).

1.1.3 Discussions are ongoing in relation to the breakdown of uses across all mixed-use sites and the details provided should therefore be treated as indicative:

Abergavenny East (CS0213):

- Total area: 24ha
- 500 residential developments (only includes units in plan period, total site capacity is 600)
- 0.75ha commercial site area, comprising 2500m^2 of planned retail space and 2500m^2 of planned hospitality space

Caldicot East, showground (CS0087):

- Total area: 38ha
- 350 residential developments

Caldicot East, Bradbury Farm (CS0251):

- Total area: 56ha
- 285 residential developments
- 3ha of commercial area including area which will include a new Council waste depot

Mounton Road, Chepstow (CS0165):

- Total area: 13ha
- 145 residential developments
- 2.54ha of commercial area assigned to various non-domestic uses (care home, community hub, commercial office space, hospitality)

Leasbrook, Monmouth (CS0270):

- Total area: 12ha
- 270 residential developments

1.1.4 Overall MCC is making provision for 6,210 homes over the RLDP 15-year plan period (2018 – 2033) to meet a housing requirement of 5,400 new homes. This results in an annual requirement of 360 dwellings per annum. Strategic Sites are anticipated to contribute approximately 1500 units towards the overall housing figures.

1.1.5 This Section provides the following:

- Estimations of the overall energy demands of all planned new developments.
- An initial assessment of the strategic development sites' potential suitability for district heating, in addition to overall power needs of the developments if heating requirements are met via heat pump technology.
- Estimations of the potential for electricity generation from roof-top PV in comparison to the energy demand estimates.
- An assessment of the potential for the strategic development sites to be provided with power generated from local wind or solar farms by mapping their locations against the less constrained areas identified in Sections 4.2 and 4.3 of the Renewable and Low Carbon Energy Assessment (RLCEA) for Monmouthshire County Council (Carbon Trust, 2020).

1.2 Method

1.2.1 The Toolkit (Welsh Government, 2015) suggests that the energy demand at non-domestic strategic development sites is estimated using benchmarks for different use types and floor area estimates. It suggests that the energy demand for residential sites is based on the outcomes of the Standard Assessment Procedure, SAP 2012 (BEIS, 2014) calculations for the different dwelling types and that the energy demand growth across the LDP period is calculated on an annual basis. Rather than considering the annual growth in energy demand, an estimate for the final energy demand figures at the end of the plan period (2033) is provided.

1.2.2 The energy demands of the identified strategic development sites are estimated according to the method provided in Figure 1.

Figure 1 - Strategic development site assessment method

Energy demand benchmarks

1.2.3 There are numerous benchmarks available relating to energy demand in non-domestic buildings. Appendix 5 of the MCC RLCEA (Carbon Trust, 2020) provides details of the benchmarks considered. Mean figures for energy demand density provided by BEIS (2016) are used to estimate the non-domestic energy demand in this assessment and energy conversion of 80% is assumed when estimating thermal energy demand. These figures are based on BEIS's Building Energy Efficiency Survey 2014-15, which is based on the energy demand of 3,690 non-domestic buildings in England and Wales, across ten sectors (BEIS, 2016). As the benchmarks used are based on national averages, and are not location specific, no correction for degree days is required. For one of the sites, Caldicot East (ref: CS0251), a CIBSE Guide F (2021) benchmark (*Local Authority buildings – Depots, good practice*), was used to estimate thermal and non-thermal demand of the proposed waste depot as this was not a sector included in the work by BEIS (2016).

1.2.4 The residential thermal demand benchmarks used are calculated using building stock EPC (DLUHC, 2023) and Ordnance Survey AddressBase (OS, 2023) data, as well as a tool developed by Hildebrand Technology Limited (2023), previously used by NGED. Thermal and non-thermal demand benchmarks were calculated for 4 archetypes: flat, terrace, semi-detached, and detached.

1.2.5 MCC has provided indicative details of the housing type breakdowns for the new developments by archetypes, where the "flat" benchmark is assumed to be representative of bungalows.

1.2.6 Where available, MCC has provided indicative details of the commercial land use areas, including building types. For commercial buildings, it was assumed that there is a 50:50 split between non-domestic buildings having either 1 or 2 storeys, which leads to non-domestic gross floor area being 1.5x that of the building foundation area.

1.2.7 The building regulations in place at the time of writing have also been considered. Within *Prosperity for All: A Low Carbon Wales*, Welsh Government (2019a) is committed to setting higher energy efficiency standards for new buildings, through a review of Building Regulations Part L. To initiate this process Welsh Government (2019b) held a consultation on the building regulations review for new homes between December 2019 and March 2020. The purpose of the consultation was to gain feedback on proposals to improve building regulations in 2020 ahead of a new Part L 2025 Standard. Following this consultation, Welsh Government (2022, 2023) published the 2022 edition of the Building Regulations Part L Volume 1 – Dwellings in November 2022 and Volume 2 – Buildings other than Dwellings in March 2023, as interim regulations prior to a further review of Part L, which will commence with a full technical consultation in 2024 for the proposed Part L 2025 standard.

1.2.8 It is anticipated that an average semi-detached home built to the Part L 2025 standard will produce 75-80% less carbon dioxide emissions than one built to previous 2014 Part L standards (Welsh Government, 2020, p.3). This is expected to be achieved through a mixture of improved fabric efficiency alongside low carbon heating and/or renewables, e.g. solar PV.

1.2.9 In October 2023, MCC passed a report that agreed that all new houses allocated in the RLDP will be net zero carbon. This is more ambitious than the previous commitment of making all new houses allocated in the RLDP net zero carbon ready.

1.2.10 As a result of the activities above, the energy demand estimates calculated in this assessment provide a worst-case scenario, and the resultant energy demands of the anticipated developments should be lower than calculated.

Grid infrastructure

1.2.11 To analyse the potential to utilise power from nearby solar PV or wind farms for the proposed sites, it is necessary to assess the viability of grid connection in those areas, as even if power can be used at the strategic development sites, it is likely that any new developments would be at least partially grid-export.

1.2.12 National Grid Electricity Distribution (NGED) provide information on their website in the form of a "network capacity map", which provides high-level information regarding the capacity available at primary and bulk supply substations. NGED caution that the "*map gives a general illustration of availability constraints **only** and cannot be relied upon to assess the terms of connection for specific premises*" (National Grid, 2023). To understand the costs, complexity and infrastructure requirements for a specific connection, a developer would need to contact NGED who would undertake development specific studies to understand the network implications of a proposal.

1.2.13 NGED's network capacity map provides indicative values for:

- *Relevant for demand connections:*

    - Substation firm demand capacity
    - Substation peak demand
    - Substation demand headroom
    - Upstream demand headroom

- *Relevant for generation connections:*

    - Substation reverse power capability
    - Connected generation
    - Accepted not yet connected generation capacity
    - Offered not yet accepted generation capacity
    - Substation Reverse Power Headroom
    - Upstream generation headroom

- *Relevant for demand and generation connections:*

    - Substation fault level headroom

1.2.14 It also indicates the level of total site capacity that is still available for these factors using a colour-coding system, for primary substations the following are relevant:

- Green: at least 20% total site capacity is still available,
- Amber: 10-20% total site capacity still available
- Red: less than 10% site capacity is still available

And for the bulk supply substations, the following are relevant:

- Green: at least 15% total site capacity is still available,
- Amber: 5-15% total site capacity still available
- Red: less than 5% site capacity is still available

(NGED, 2023)

1.2.15 Monmouthshire is served by the electricity network from 2 grid supply points (GSPs): Rassau and Uskmouth. These GSPs form part of the transmission network, national grid electricity transmission (NGET) and are responsible for stepping down the voltage to be suitable for the distribution network, national grid electricity distribution (NGED). Although it is extremely unlikely that MCC will see any potential renewable projects at the candidate sites connected to the transmission network directly, the status of Rassau and Uskmouth GSP will have knock-on effects on bulk supply point (BSP) and primary capacity. In some instances, extensive reinforcement works and network upgrades at the transmission level may make projects at the distribution level unviable due to high costs and lengthy connection timescales.

1.2.16 National grid's ClearView report provides a snapshot of current conditions across the network's GSPs, including the limits to how much energy can be imported or exported between NGED and NGET, as well as information on the expected completion date of transmission reinforcement works. The technical limits are currently under review, and change frequently, so it is strongly advised that MCC begin discussions with national grid to ensure there is a clear understanding of the current grid conditions and the implications this could have on renewable energy schemes at some (or all) of the candidate sites.

1.2.17 The status of the BSPs and primary substations that supply the areas covering the strategic development sites are reviewed in section 1.3.2 to identify any potential network constraints

which may need to be addressed in order to allow the new strategic development sites to be connected to the distribution network. As noted above this information is indicative in nature and could only be confirmed with development-specific detailed studies undertaken by NGED.

Renewable energy assumptions

1.2.18 To estimate the potential to satisfy the energy demand from roof-top PV the following assumptions are made:

- Domestic: 85% of new residential dwellings can accommodate 3.3 kWp of solar PV on their roof (this equates to the average domestic roof-top PV installation recorded on the FIT register within Monmouthshire (Ofgem, 2020)). It is assumed that 85% of new buildings can accommodate PV as some of the new dwellings are anticipated to be flats, and additional buildings may not be suitable for PV due to external factors, e.g. shading from nearby objects.

- Non-domestic: 40% of the building foundation area is available for solar PV installations, and 6.5m^2 is required for 1 kWp of capacity. These values are in line with the consultation values provided in the Building Regulations consultation documents (Welsh Government, 2019b, p.59).

1.2.19 The potential to satisfy the energy demand from district heating opportunities and offsite renewable electricity generated is informed by the estimated heat density of the developments, and the outputs from Sections 4 and 7 of the Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020).

1.3 Results

Energy demand from RLDP strategic development sites

1.3.1 The first stage in assessing the potential for low carbon energy to offset energy demand at development sites is to calculate the associated energy (primarily heating and electricity) demand. The exact development details of the sites are currently unknown, **details provided are indicative and subject to change with ongoing discussions with the site promoters.** The estimated energy demand of the sites is provided in

1.3.2 Table 1. It should be noted that these figures are based on available energy use benchmarks and actual energy demand of newly developed sites should be lower due to the higher energy efficiency associated with MCC's requirement that all new houses allocated in the RLDP will be net zero carbon.

Table 1 - Estimated energy demand from the RLDP strategic sites

	Abergavenny East (CS0213)	Caldicot East (Showground) (CS0087)	Caldicot East (Bradbury Farm) (CS0251)	Mounton Road, Chepstow (CS0165)	Leasbrook, Monmouth (CS0270)

Total domestic non-thermal (heating) energy demand (MWh p.a.)	2,056	1,361	1,571	549	1,092
Total domestic thermal (heating) energy demand (MWh p.a.)	5,726	3,590	4,333	1,430	3,005
Total domestic electricity demand assuming thermal energy is provided by an ASHP with a COP of 3 (MWh p.a.)	3,965	2,558	3,015	1,026	2,094
Total non-domestic non-thermal energy demand (MWh p.a.)	1,247	-	333	1,464	-
Total non-domestic thermal energy demand (MWh p.a.)	421	-	2,038	961	-
Total non-domestic electricity demand assuming thermal energy is provided by an ASHP with a COP of 3 (MWh p.a.)	1,387	-	1,012	1,785	-
Total non-thermal energy demand (MWh p.a.)	3,303	1,361	1,904	2,014	1,092
Total thermal energy demand (MWh p.a.)	6,147	3,590	6,370	2,391	3,005
Total energy demand assuming thermal energy is provided by an ASHP with a COP of 3 (MWh p.a.)	5,352	2,558	4,028	2,811	2,094

Grid infrastructure

1.3.3 Table 2 provides details of the bulk supply point (BSP) and primary substations which serve the strategic development site areas. BSPs step down voltage from 132kV to 33kV, while primary substations step down voltage from 33kV to 11kV. BSPs also usually supply a larger network area than primary substations. Typically, the smaller a project is, the more likely it is to be connected to a primary substation, although there are multiple factors that define where a project ultimately connects to, including distance to substation and the number of generators already connected. The details in Table 2 are taken from NGED's network capacity map and as identified within the method are indicative in nature and cannot necessarily be relied upon (NGED, 2023). A glossary of the relevant capacity map layers can be found here.

1.3.4 The figures presented in Table 2 provide a brief snapshot of the current network conditions of the nearest BSP and primary substations. These numbers are constantly changing due to extensive congestion in the network and dynamic connection queues. The current queuing system has seen some major revisions recently (Ofgem, 2023) which will have a lasting impact

on the connection process and future grid capacity, therefore it is important to re-evaluate the actual situation nearer to the time for any potential developments.

1.3.5 These recent changes will have a major impact on **reverse power headroom** figures, which is the sum of the generating capacity from projects already connected to the substation and projects which have been accepted to connect but are not yet constructed. As a result of the new queue management process, NGED may see additional capacity being freed up across its network. However, as connections are managed on a "first-come first-served" basis, MCC (or the developer of the projects) will need to engage directly with NGED to better understand the connection process and ensure any generation applications meet the necessary criteria.

1.3.6 Regardless of network constraints, MCC should begin communicating with NGED to minimise the risk of unviable projects. Even if there is no available capacity at the nearest connection point, NGED will be able to guide MCC in entering the queuing process, if required.

1.3.7 In some instances, renewable energy generation projects can be developed without a grid connection (e.g. some private-wire arrangements), which could give MCC the option to meet future onsite demand within a highly constrained network. This would be subject to a close alignment between demand and generation and various other technical considerations. Again, NGED should be the first point of contact when discussing potential connections as the planning and applications processes are being regularly updated to best meet the needs of private and public-sector developers.

1.3.8 There are a number of services that NGED can provide to help MCC better understand the connection application process, such as budget estimates and connection surgeries. The level of information that MCC will need to provide to NGED (and any associated costs) will be reflective of the level of complexity of the assessment.

While this section serves to provide information on how MCC can aim to supply future energy demand at their 5 sites through the deployment of on-site or nearby renewable energy generators, MCC should also bear **demand headroom** in mind. Although these future sites may only require demand connections in the next 5-10 years, MCC should begin discussions with NGED at the earliest opportunity. If substation upgrades or further upstream reinforcement works are needed, MCC may see significant benefits in engaging early, as this may reduce project delays and unforeseen costs.

Table 2 - Summary of indicative primary substation constraints as provided by NGED (Sep 2023)

	Abergavenny East (CS0213)	**Caldicot East (Showground) (CS0087)**	**Caldicot East (Bradbury Farm) (CS0251)**	**Mounton Road, Chepstow (CS0165)**	**Leasbrook, Monmouth (CS0270)**
Bulk Supply Point	*Abergavenny Primary (BSP)*	*Sudbrook Primary (BSP)*	*Sudbrook Primary (BSP)*	*Sudbrook Primary (BSP)*	*Abergavenny Primary (BSP)*
Substation demand headroom	2.69 MVA	16.47 MVA	16.47 MVA	16.47 MVA	2.69 MVA

Substation reverse power headroom	-193.61 MVA	-2.37 MVA	-2.37 MVA	-2.37 MVA	-193.61 MVA
Upstream demand headroom	32.67 MVA	No available information	No available information	No available information	32.67 MVA
Upstream generation headroom	23.75 MVA	No available information	No available information	No available information	23.75 MVA
Substation fault level headroom	12.47 kA	13.35 kA	13.35 kA	13.35 kA	12.47 kA
Associated statement of works	No	No	No	No	No
Primary substation	*Abergavenny Primary (Primary)*	*Sudbrook Primary / Caldicot Primary*	*Sudbrook Primary*	*Chepstow Primary*	*Monmouth Primary*
Substation demand headroom	8.99 MVA	Sudbrook: 15.80 MVA Caldicot: 7.20 MVA	15.80 MVA	4.23 MVA	10.22 MVA
Substation reverse power headroom	30.59 MVA	Sudbrook: 9.63 MVA Caldicot: 4.86 MVA	9.63 MVA	-1.35 MVA	-1.88 MVA
Upstream demand headroom	2.69 MVA	Sudbrook: 16.47 MVA Caldicot: 16.47 MVA	16.47 MVA	16.47 MVA	2.69 MVA
Upstream generation headroom	-193.61 MVA	Sudbrook: -2.37 MVA Caldicot: -2.37 MVA	-2.37 MVA	-2.37 MVA	-193.61 MVA
Substation fault level headroom	6.88 kA	Sudbrook: 13.29 kA Caldicot: 17.06 kA	13.29 kA	11.44 kA	10.64 kA
Associated statement of works	No	Sudbrook: No Caldicot: No	No	No	No

(NGED, 2023)

1.3.9 From the snapshot in Table 2, we can see that all the BSPs nearest to the candidate sites have negative reverse power headroom values, indicating that no new generators could be connected here. Nevertheless, Sudbrook primary BSP's value of -2.37MVA, compared to Abergavenny

primary BSP's value of -193.1MVA indicates that Sudbrook is more likely to see additional capacity being freed up in the near future.

1.3.10 At the primary level, Abergavenny primary, Sudbrook primary and Caldicot primary see better potential for renewable energy connections, as their numbers are green. Connections at Chepstow primary and Monmouth primary would not be possible until additional capacity is freed up. None of the sites have fault level headroom values in the red, which is a good sign, but as mentioned above, this snapshot is constantly changing and requires pro-active engagement by MCC.

1.3.11 Depending on the specific nature of the final development and the outcome of NGED's studies, some or all of these developments may need to connect to alternative substations or pay for additional grid infrastructure upgrades or reinforcements.

District heat network potential at RLDP strategic development sites

1.3.12 With respect to whether to install a district heat network, individual heat pumps or other low carbon heating solutions to new buildings, it is advised that policy wording is provided so that the individual developer can assess the viability of the options and decide themselves on this basis. *Future Wales: The National Plan 2040* provides the following spatial policy:

> *"**Policy 16 – Heat Networks***
>
> *Within Priority Areas for District Heat Networks planning authorities should identify opportunities for District Heat Networks and plan positively for their implementation.*
>
> *Large scale mixed-use development should, where feasible, have a heat network with a renewable/low carbon or waste heat energy source. Planning applications for such development should prepare an Energy Masterplan to establish whether a heat network is the most effective energy supply option and, for feasible projects, a plan for its implementation"*
>
> (Welsh Government, 2021, p.93)

1.3.13 The heat density of the strategic development sites is provided in Table 3. This calculation is based on the energy demand calculated above and the gross development areas provided by MCC. The heat densities do not account for additional land surrounding the sites. The locations of the strategic development sites are reviewed against the heat network opportunity areas identified in Section 7 of the Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020).

Table 3 - Estimated heat density at the RLDP strategic development sites

	Abergavenny East (CS0213)	**Caldicot East (Showground) (CS0087)**	**Caldicot East (Bradbury Farm) (CS0251)**	**Mounton Road, Chepstow (CS0165)**	**Leasbrook, Monmouth (CS0270)**

Total thermal energy demand (MWh p.a.)	6,147	3,590	6,370	2,391	3,005
Site area (hectares)	24.00	38.00	56	13.00	12.00
Heat demand density (kWh/m² p.a.)	25.61	9.45	11.38	18.40	25.04
Proximity to opportunity areas for heat networks – Anchor loads	Various anchor loads situated within Abergavenny. Nearest one is Coed Glas college, approx. 100m west of site across the A465. Other anchor loads in Abergavenny are greater than 500m away.	4 anchor heat loads located in Caldicot, nearest one is 230m southwest of site, Castle Park primary school. Other anchor loads in Caldicot are greater than 500m away.	Nearest anchor heat load 700m south of site, Archbishop Rowan Williams Church in Wales primary school.	Chepstow community hospital nearby, approx. 100m northeast of site, across A466. Mounton House special school approx. 500m west of site.	Various anchor loads situated within Monmouth. Nearest ones are Monmouth comprehensive school approx. 440m southwest of site boundary and Osbaston church in Wales school, approx. 520m northwest of site boundary. Both are on the other side of the A466. Others are further than 500m away.
Proximity to opportunity areas for heat networks – Waste heat sources	Various waste heat sources in Abergavenny, nearest one is Pen y Fal water pumping station, 300m north of site. Other waste heat sources in Abergavenny are greater than 500m away.	Significant number of sites 500-1000m south of site boundary, across the B4245. The closest is Severn Bridge industrial estate ~500m away.	Portskewett former refuse tip 700m southeast of site.	Chepstow sewage works 150m west of site.	Valley Enterprise Park and Hadnock Road Industrial Estate are 400-500m from the site to the south, with further potential heat loads further south.

1.3.14 As discussed in Section 7 of the Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020), heat networks have traditionally been

located in areas of high heat density, with core heat densities in excess of 50 kWh/m^2 p.a. (geographic area) to ensure financial viability (IEA, 2008). A study by the IEA (2008) suggests that with careful planning heat networks viability may be achieved in areas with a heat density of 10 kWh/m^2 p.a. This heat density is considered to be the minimum heat density that could be considered for a heat network. The Department of Energy and Climate Change (DECC, 2009) stated that the annual heat demand density needed for district heating to be profitable is more than double this value (26 kWh/m^2), with the likelihood of financial viability increasing with heat density.

1.3.15 From the estimates in Table 3, it can be seen that overall, the potential for financially feasible heat networks is low, as none of the sites have heat densities above the minimum value of 26kWh/m^2 presented by DECC. This is in line with the conclusions in Section 7 of the Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020). However, **Abergavenny East** and **Leasbrook** sites have heat demand densities just shy of the DECC figure for financial viability showing these sites have the greatest opportunity for heat networks. **Caldicot East (Bradbury Farm)** and **Mounton Road** have heat demand densities exceeding the minimum recommended heat density presented by the IEA, suggesting there is theoretical potential if cost saving measures such as those identified by the IEA (2008) are implemented into the design (e.g. changes in system design utilising low pressure and low temperature systems with direct connection to radiators).

1.3.16 As heat demand density calculations do not account for buildings beyond the site boundaries, an assessment of nearby anchor loads and waste heat sources was undertaken. All of the sites have anchor loads within 1km which, subject to further technical and feasibility assessments, could allow them to be connected to wider heat network schemes. **Mounton road** is located close to Chepstow community hospital and a nearby sewage works which can provide a favourable opportunity for heat network development. **Leasbrook**'s close proximity to multiple industrial estates with large waste heat loads may also provide a favourable opportunity for a heat network.

1.3.17 Should MCC decide to develop any heat networks at their candidate sites, a few infrastructure requirements should be considered. The first is the need for an energy centre, which is a standalone building which houses the plant (e.g.: heat pumps and thermal stores) and from which hot water is transported via underground pipes to various buildings (customers). Additionally, trenching and initial disruption from trenching and laying the underground pipes. Depending on the alignment of timelines, enabling works (laying underground pipes to enable connection) may be needed for some new buildings, prior to their construction, to secure them as customers. Final costs and timescales of developing the heat network will be dependent on a multitude of factors, including, but not limited to, onsite heat demand, piping length and complexity and number of anchor loads and waste heat sources connected.

Potential to satisfy/offset energy demand from roof mounted solar PV

1.3.18 Estimates of the potential roof mounted solar PV that could be accommodated at the RLDP strategic development sites is provided in Table 4: Estimated energy generation potential from roof mounted solar PV installed on buildings at the strategic development sites . The proportion of the electricity demand that could be offset by energy generated by PV is estimated for the non-thermal energy demand, and the total energy demand including thermal energy demand if

this is met by a heat pump with a coefficient of performance of 3 for the RLDP strategic development sites.

Table 4: Estimated energy generation potential from roof mounted solar PV installed on buildings at the strategic development sites

	Abergavenny East (CS0213)	Caldicot East (Showground) (CS0087)	Caldicot East (Bradbury Farm) (CS0251)	Mounton Road, Chepstow (CS0165)	Leasbrook, Monmouth (CS0270)
Domestic PV potential (MW)	1.40	0.98	1.08	0.41	0.76
Domestic PV electricity generation potential (MWh p.a.)	1228	860	946	356	663
Proportion of domestic non-thermal electricity demand offset by PV generation	60%	63%	60%	65%	61%
Proportion of domestic electricity demand assuming thermal energy is provided by an ASHP with a COP of 3 offset by electricity generated by PV	31%	34%	31%	35%	32%
Non-domestic PV potential (MW)	0.2	-	0.4	0.3	-
Non-domestic PV electricity generation potential (MWh p.a.)	180	-	323	274	-
Proportion of non-domestic non-thermal energy demand offset by electricity generated by PV	14%	-	97%[1]	19%	-
Proportion of non-domestic electricity demand assuming thermal energy is provided by an ASHP with a COP of 3 offset by electricity generated by PV	13%	-	32%	15%	-

[1] The high percentage here (and the 32% in the cell below) are due to the low electricity demand of the waste depot according to the benchmarks identified. If there will be for example significant EV charging expected at the depot this will increase electricity demand

1.3.19 Table 4: Estimated energy generation potential from roof mounted solar PV installed on buildings at the strategic development sites estimates the level of energy demand that could be offset rather than met by the roof-top PV. In order for the maximum energy demand at the strategic development sites to be met by the roof-top PV, integration of storage would be required, as the time of generation is unlikely to perfectly meet the time of demand, especially with respect to heating needs. Some useable energy is lost when stored so the actual energy demand met would be reduced if storage is integrated.

1.3.20 In 2022/23 the new editions of Building Regulations – Part L (Welsh Government, 2022, 2023), raised the fabric efficiency of new buildings in Wales and there will be a further increase in the required fabric efficiency standards of new buildings built into the future Part L 2025 Standard (Welsh Government, 2020). Further to this, MCC has recently passed a report to state that new houses allocated in the RLDP will be net zero carbon which would necessitate even higher energy efficiency. As such, the energy demand of the new developments should be lower than estimated in Table 4: Estimated energy generation potential from roof mounted solar PV installed on buildings at the strategic development sites , and the proportion of energy demand that could be offset by energy generated by roof-top PV on the buildings would be greater than indicated. However, the demand figures do not consider any potential demand for energy for vehicles, including electric vehicles, which is likely to grow over the Plan period.

1.3.21 The RLDP makes provision for 6,210 new homes to meet a housing requirement of 5,400 new dwellings during the RLDP period (including the Strategic Sites). As of April 1st, 2023, the number of homes remaining to be built to meet this target was 2,455. If the average domestic solar PV installation in Monmouthshire was installed on 85% of these new dwellings yet to be built, this would equate to 8.1 MW with a generation potential of approximately 7,100 MWh p.a. (refer to section 5 of the Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020).

1.3.22 The total roof-top PV potential on non-domestic buildings is additional roof-top solar PV potential to that calculated and identified in Sections 5 of the Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020). The total potential roof-top PV estimated across the 5 RLDP strategic development sites is 6.24 MW with a generation potential of approximately 5,469 MWh p.a.

Potential to satisfy energy demand from off-site renewable electricity generation

1.3.23 The location of the strategic development sites is assessed alongside the outputs generated from Sections 4.2 and 4.3 Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020), which assess potential wind energy resource and ground mounted solar resource respectively. see Figure 3 and Figure 2. A summary of the assessment findings is provided in Table 4. The table also contains information on the agricultural land classification of the sites which is relevant to the suitability of ground-mounted solar PV in these areas, although this may be considered less relevant within sites already identified for strategic development rather than agriculture.

1.3.24 There may be potential to link the renewable energy sites to strategic development sites through a direct supply (“private wire”). If this private wire connects several loads it would be referred to as a "micro-grid". Micro-grids are associated with relatively complex legislative and technical requirements; however, they have been adopted elsewhere e.g. Northern Isles New

Energy Solutions (NINES) (SSEN, 2020) and there may be potential to adopt this approach during the RLDP period. Due to differences in generation profiles and load profiles, to ensure security of supply, the micro-grid would either require integration with energy storage or connection to the distribution network. Energy generated and not utilised within the microgrid would need to be stored, exported to the distribution network or dissipated through other means.

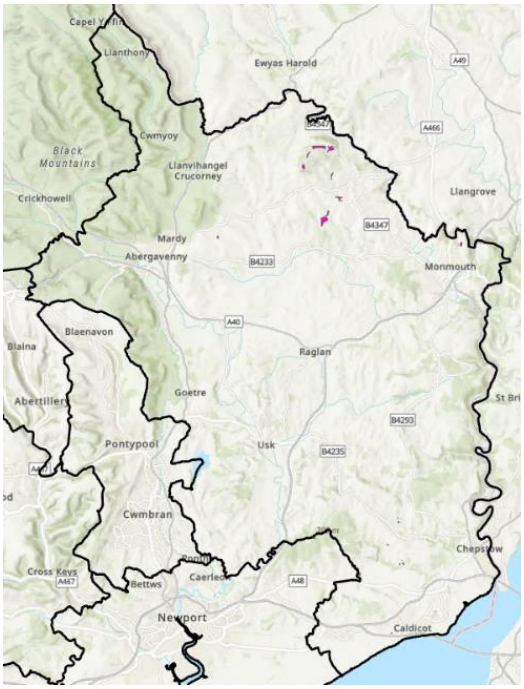

Figure 2 - Less constrained land for wind

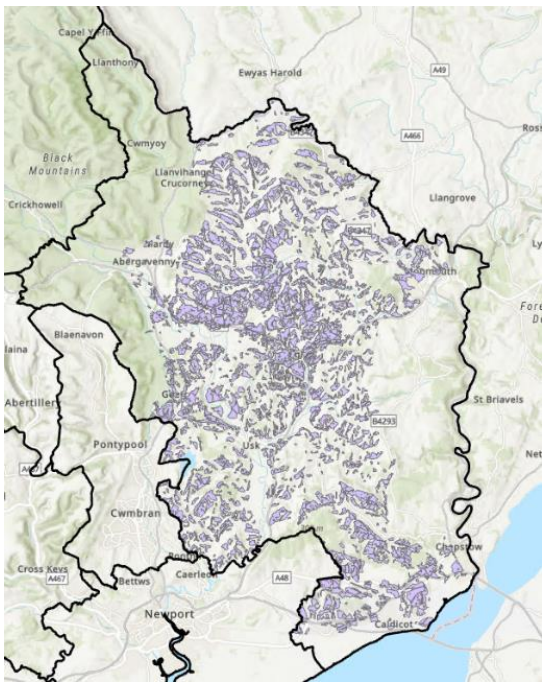

Figure 3 – Less constrained land for solar

Table 4 - Proximity of strategic development sites to areas that are less constrained for wind and solar

	Abergavenny East (CS0213)	**Caldicot East (Showground) (CS0087)**	**Caldicot East (Bradbury Farm) (CS0251)**	**Mounton Road, Chepstow (CS0165)**	**Leasbrook, Monmouth (CS0270)**
Proximity to less-constrained areas for wind developments	Cluster 7 (1.5ha) situated 3.5km north-east of site.	Nearest area less constrained for wind (Cluster 15, 0.4ha) ~500m east of site boundary.	Nearest area less constrained for wind (Cluster 15, 0.4ha) ~500m south-east of site boundary.	Nearest less-constrained wind cluster ~5km west of site.	Cluster 8 (3.4ha) situated ~1.25km north/north-east of site.
Proximity to less-	Multiple areas of land less	Western plot of land overlaps	Some overlap with less-	Site coincides with area less-	Site coincides with area

constrained areas for solar PV developments	constrained for solar in close proximity to the site. Area 4 sites to the north (700m at closest point), Area 14 sites to the east (800m at closest point), Area 16 sites to the south, 600m at closest point.	with less-constrained area for solar (Area 1). Eastern plot of land is adjacent to various areas identified as less constrained for solar PV (Area 1).	constrained area for solar, multiple plots adjacent to site (Area 1). There may be an opportunity to have some of this site's demand met by the nearby Oak Grove solar farm, approximately 450m northeast of the site. However, this is dependent on any existing private offtaker arrangements and numerous technical considerations. Cumulative impact must also be considered if a new solar farm is proposed nearby.	constrained for solar PV (Area 3).	suitable for less-constrained solar PV (Area 15), with various other plots surrounding the site.
Predictive Agricultural Land Classification	Abergavenny is west of the site and is entirely classified as U (urban). To the north and northeast, the land is primarily 3a, with various patches of 3b and NA (non-agricultural) scattered throughout. The land to the south is grade 2, while the land to the southeast is a mix of 3a, 3b and NA. There is a small segment of grade 4 land	Land to the west and south is classed as urban (U), with a small plot of 3b adjacent to the south-western border of the site. There is a mix of 1/2/3b/NA to the east and neighbouring site, Bradbury Farm (CS0251), to the northeast. The land to the north/northwest is a mix of land grades 1/2/3a/3b.	The land to the east of the site is grade 2. To the north, a mix of land grades 2, 3b and NA. To the west, the land is comprised of a mix of 1/2/3a/3b. Land to the south almost entirely a split between U and NA.	Land to the north and east is urban (U). To the south, land is grade 2. Land to the west almost entirely split between grades 2 and 3b, with some small patches of NA scattered throughout.	The nearby presence of Monmouth and Osbaston result in the land to the south and west of this site being marked as urban (U). To the north/northeast, land is grade 2, and changes to a mix of 3b, 4 and NA at a distance of approximately 600m. To the east, the land is a mix of 2 and 3a.

	along the eastern perimeter of the site, which extends into NA-graded land (Ysgyryd Fach).				

1.4. Conclusions

1.4.1 MCC could use their development controls to ensure that energy generation at the RLDP strategic development sites is maximised, and energy usage is minimised by requiring high energy efficiency standards. To this aim MCC have already passed a report that agreed that all new houses allocated in the RLDP will be net zero carbon.

1.4.2 Both Caldicot East sites are within 1km of an area identified as less constrained for wind (Cluster 15). All sites coincide with or are located near to areas that are less constrained for ground mounted solar PV, providing opportunities for considering direct integration of larger renewable energy generation into the overall developments.

1.4.3 The thermal demand density at 5 of the 6 sites is sufficiently high to potentially integrate district heat networks into their development, and developers should consider this when designing the sites. If district heat networks are not considered financially viable for the new developments, then other low carbon heating technology, e.g. heat pumps, should be deployed to support decarbonisation targets.

1.4.4 It is identified that the existing grid infrastructure in the area has capacity constraints associated with it. As such supportive policies regarding new grid infrastructure and infrastructure reinforcements/upgrades should be adopted to help facilitate the transition to a decarbonised energy system.

1.4.5 Further recommendations regarding the design and layout of strategic development sites is provided in Section 10 of the Renewable and Low Carbon Energy Assessment for Monmouthshire County Council (Carbon Trust, 2020).

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Published in the UK: 2023