



CAMPAIGN FOR THE PROTECTION OF RURAL WALES

APPENDIX 3

ERRORS, PROBLEMS & METHODOLOGY in the EVIDENCE for ENERGY POLICY in draft NDF 2019

ARUP STAGES 1 AND 2: Identification of priority areas, application of constraints, refinement.

1. ARUP 1: BMV Agricultural Land: Constraints fail to include Grade 3a farmland
2. ARUP 2: Classification & extent of PAs: inconsistencies between dNDF PA mapping and ARUP 2 - lack of evidence and explanation.
3. ARUP 2 Appendix J & classification of PAs by RE technology.
4. Historic Landscape buffering.
5. Protected Landscapes – inconsistently and inadequately buffered – failure to have regard to purposes of protected landscapes.
6. General Criteria for Visual Impact.
 - Arup 2 para. 3.1.1.1
7. ARUP 2: C4 ‘Summary of Renewable Energy Assessments.
8. ARUP 2: C4 ‘Summary of sensitivity assessments.
9. ARUP 2: (p148) Fundamental errors in ‘Primary settlements – population’ map.
10. Ancient Woodland.
11. ARUP 2 9.5.2 (pp46-50) Rationale for revised Priority Areas for Wind and Solar Energy – further comment.
 - Refinement of particular PAs
 - General refinement questions
 - Design guidance
12. ARUP 1 Refinement themes identified.
13. ARUP 1: Fixed, variable & overlay constraints Appendices B and C ARUP 1.
14. Priority Area 8 Inclusion of MOD SENTA training area and buffer.
15. ARUP 2 (p155 E1) ‘Grid Capacity results’ lacks explanation or justification.
16. New methodology for identification of Search Areas – neither explained nor justified.
17. ARUPs 1 and 2 and Executive Summary: Document verification.

OTHER DRAFT NDF DOCUMENTS

HABITATS REGULATIONS ASSESSMENT

INTEGRATED SUSTAINABILITY APPRAISAL REPORT

OTHER EVIDENCE DOCUMENTS

PROCEDURAL ERRORS IN RUNNING OF CONSULTATION

1. ARUP 1: BMV Agricultural Land: Constraints fail to include Grade 3a farmland

ARUP 1 Methodology p7 Table 2: includes Grades 1 and 2 farmland only. Welsh Government policy on BMV (Best and Most Valued) (PPW10 3.5.4) farmland requires the exclusion from PAs of all BMV, i.e. including Grade 3a farmland. See chart below, which uses the 2011 percentage figures for Wales - the latest currently available:

ALC: Grade calibrated to match 2011 urban area data	ha	% of net area	% of all-Wales area
1	12,132	0.7	0.58
2	110,274	6.2	5.31
[NDF cites 1 + 2 only]	[122,406]	[6.9]	[5.89]
3a	174,553	9.9	8.40
BMV	296,959	16.8	14.29
3b	509,505	28.8	24.52
4	401,891	22.7	19.34
5	476,214	26.9	22.91
1-5	1,684,609	95.2	81.06
Urban	84,986	4.8	4.09
ALC + Urban	1,769,555	100.0	
Wales total area *	2,078,200		100.00
Therefore Non-agric	308,645		14.85

* Source: wales.com (Welsh Government information website)

Criteria applied by ARUP within the methodology to identify PAs are therefore incorrect and the ARUP Methodology should recognise that Government BMV policy requires the exclusion from PAs of 14.29% of all-Wales land area, or 297km², as BMV, not 5.89% or 110km² as has been done.

2. ARUP 2: Classification & extent of PAs: inconsistencies between dNDF PA mapping and ARUP 2 - lack of evidence and explanation

a) ARUP 2 p196 Drawing 10.18 PA15 (Southern part of unrefined PA3) indicated as suitable for wind only not 'wind and solar', there is no mapping of this PA for solar.

But dNDF Map p 42 – PA15 is redefined for wind and solar, and also has a solar only extension.

b) Similar inconsistency of RE technology for PA1 between dNDF and ARUP2.

- c) PAs 1, 7, 8 & 9. Maps in Appendix J indicate excluded areas within each PA, e.g. Rhosgoch Bog SAC SSSI, SAC & NNR within PA7. These fail to be reflected in the dNDF p42 mapping. This is not consistent with the identification of high risk constraints in ARUP1 'Table 1: Constraints applied to define the high risk areas for onshore wind and solar energy development' or ARUP 2 Table 2 'Fixed Constraints' p10.

ARUP 1 and 2 constitute the underlying evidence for the proposed locations of PAs. Subsequent and unexplained/unevidenced changes in PAs as presented in the dNDF are not acceptable.

3. ARUP 2 Appendix J & classification of PAs by RE technology:

No justification for classifications of PAS by technology is provided. No identification of land areas according to the criteria for the individual technologies has taken place.

For example, wind/wind and solar PAs do not correlate to the 'Wind Speed Wales' map ARUP 1 p80, though wind speed is the fundamental requirement for the most efficient use of wind technology. (General rule of thumb: wind turbines can achieve 8x the output where the wind speed is doubled.)

ARUP methodology fundamentally departs (in this and other criteria and general methodology) from Welsh Government Renewable Energy Toolkit P137: '*However, at the time of writing this toolkit, the standard industry approach is, for 80m hub height machines, to look for a minimum average annual wind speed of 6.0m/s at 45 above ground level, and ideally in excess of 6.5m/s.*' Welsh Government apparently proposes that more or larger turbines (or both), with their greater environmental, landscape and social impacts, will make up for potentially unsuitable wind speeds. This is not an intelligent approach and does not respect rural residents, the landscape or the environment.

Similarly identification of a PA for solar is not predicated on evidence gathered regarding suitable topography.

4. Historic Landscape buffering:

See maps ARUP 2 pp169-170 indicating buffering of historic assets by 3km and 5km. Contrary to the legend, historic landscapes are not buffered, resulting in close proximity of PAs 1, 3, 5, 7, 11, 13, 14 and 15 to neighbouring Registered Historic Landscapes. Policy 10 will prevent impacts of development on these Registered Historic Landscapes being given due weight in the planning balance.

5. Protected Landscapes – inconsistently and inadequately buffered – failure to have regard to purposes of protected landscapes:

Welsh Government has a duty to have regard to the purposes of National Parks and AONBs where its policies may have an impact on their statutory purposes. The definition of PAs for RE development close to the boundaries of protected landscapes, which may include wind turbines up to 250m in height, is clearly a case in point.

See ARUP 2 9.5.2 pp46-50 and Section C1: C1 is not explained but seems to set out to establish across the unrefined PAs the % of the relevant protected landscapes from which development of wind turbines at either 150m height or 250m at a particular location would be visible – indicated by a coloured spot. The methodology and its rationale are not explained. The maps can be very hard to read with colour keys close in tone and almost indistinguishable. What %s are considered acceptable and why is not explained. This methodology does not address issues of very significant impacts on smaller % areas of protected landscapes, for example the loss of the currently magnificent views northwards out of the Brecon Beacons National Park from its high ground throughout the park and from the entirety of the northern edges.

Text in 9.5.2 which explains refinement of PAs is inconsistent and wholly subjective in approach, resulting, for example, in buffers as small as 2.5/3km between the Brecon Beacons National Park and PAs 7 and 8, while a 'suitable buffer area (of approximately 4km)' is applied between Snowdonia National Park and PA5, and PAs 12 and 13, on visibility grounds from protected landscapes are designated for solar only. These are just a few illustrations of the inconsistencies of treatment – see 11 below.

Overlay constraints in ARUP 1 Appx C1 refer to 2km and 20km buffers for solar and wind respectively to be applied to designated landscapes, but overlay constraints do not contribute to the identification of PAs.

At the very least the evaluation of impacts on protected landscapes needs justification to explain how Welsh Government considers that proper regard has been given to the statutory purposes of protected landscapes.

6. General Criteria for Visual Impact

LANDMAP Information Guidance Note 3 (Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines) refers to significant landscape effects 'to around 20km+ where there are sensitive upland/mountainous areas in the overall study area' and impacts on visual amenity up to 35km.

Even Welsh Government's Renewable Energy Toolkit, which works its examples for wind turbines of 120m height, refers to a separation of 7km, 'the rationale being that beyond this distance wind farms are no longer dominant in the landscape'. Simple and clear, if itself inadequate for turbines of 150m or 250m.

Arup 2 para 3.1.1.1

Significant landscape or visual effects in relation to High Sensitivity receptors occur in combination with Medium magnitude and above. That in turn relates to the physical size, numbers and cumulation of turbines,

"NRW's Seascape and visual sensitivity to offshore wind farms in Wales: Strategic assessment and guidance Stage 1 - Ready reckoner of visual effects related to turbine size considers the relationships between distance from observer to wind farm and turbine height. The resulting magnitudes of change for offshore wind farms has been used to identify the visual study areas for turbines up to 150m and up to 250m.

It is acknowledged that using the NRW Ready reckoner of visual effects related to turbine size report to inform the identification of visual study areas has certain limitations. For example, the number of Seascape, Landscape and Visual Impact Assessments (SLVIAs) used to inform the report was small due to the availability of relevant SLVIAs. However, given the strategic nature of this study it is considered that the use of the Ready reckoner is acceptable.

The visual study areas have been focussed on the range of distances linked to turbine height which have been shown to result in impacts of medium magnitude or above, see Figure 2.

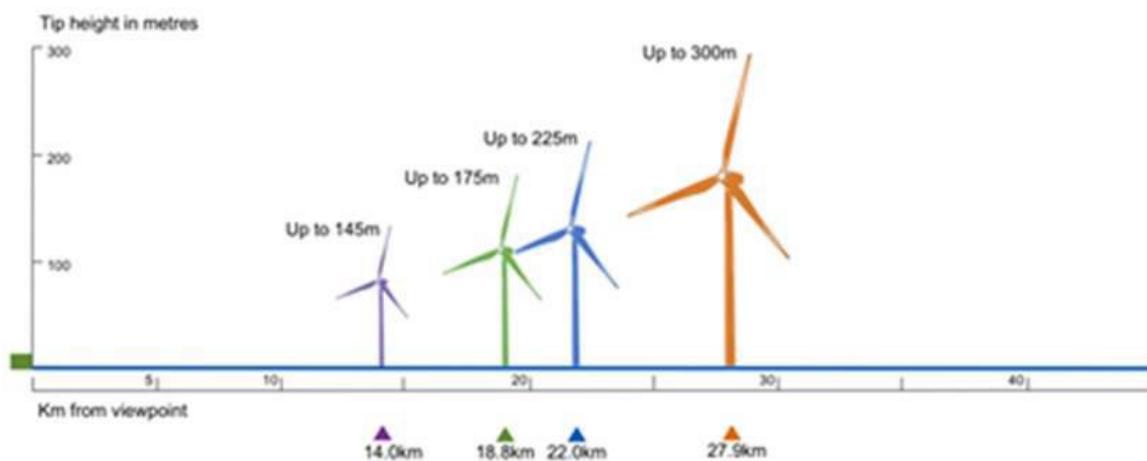


Figure 2: Distances at which average medium magnitude of visual effect occurs for different heights of turbine. Source: Commissioned Report for NRW Evidence Series, Report Number 31515

The visual study areas for turbines up to 150m and 250m have been identified by interpolating between the range of turbine heights given in NRW's Stage 1 ready reckoner report, which gives:

- 15km (rounded up from 14.75km) buffer for turbines up to 150m.
- 24km for turbines up to 250m.

These visual study areas for 150m and 250m turbines have been applied to all nationally designated landscapes within Wales. In addition, the visual studies areas were also applied to those nationally designated landscapes in England where the visual study areas would extend into Wales.”

7. ARUP 2: C4 ‘Summary of Renewable Energy Assessments’ (pp C8-C9)

The Powys County Council – 2016 REA is referenced instead of the subsequent, and radically revised, REA published in May 2017 which is not mentioned. <https://en.powys.gov.uk/article/5365/Supporting-Evidence>. We give this as an example. We have not checked accuracy of information for other Local Planning Authorities.

Has any work been done to reconcile LPAs REAs with ARUP PAs? If not, why not? If so, where is the evidence? What is the justification for overturning the conclusions of Powys’s own REA, which, conducted according to Welsh Government Guidance, concluded there was no scope for wind search areas in Powys? Where does this leave LPAs such as Powys which has to contend with 3 separate and inconsistent spatially defined policy regimes all imposed on them by the Welsh Government: first TAN 8 SSAs for wind, next Local Search Areas for Solar and now vast NDF Priority Areas. How can they possibly assess impacts, let alone cumulative impacts, in future decision-making for RE projects under 10MW, when there are three conflicting spatial policy regimes and any RE application could be inside one or more regimes or outside all of them? TAN 8 still stands according to PPW 10.

See 14 below re MOD SENTA training area, accounted in consideration of wind LSAs in Powys. Were no discussions held with LPAs regarding major constraints in their LPA areas?

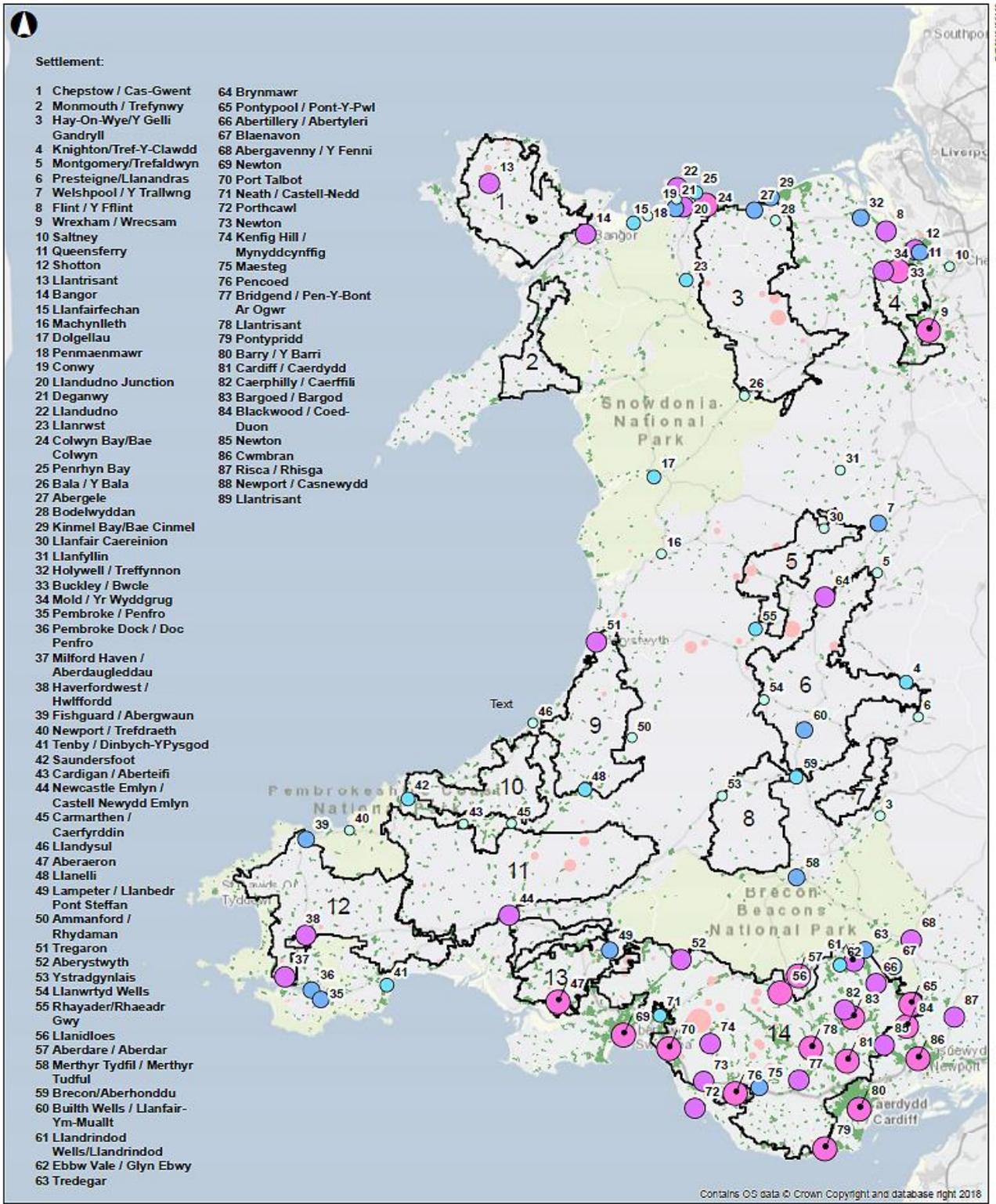
8. ARUP 2: C4 ‘Summary of sensitivity assessments’ (p C13)

There is no reference to Powys County Council– ‘Landscape Sensitivity Study for Solar Farm Development’ published in May 2017. <https://en.powys.gov.uk/article/5365/Supporting-Evidence>. We give this as an example. We have not checked accuracy of information for other Local Planning Authorities.

Have PAs been considered against LPAs Landscape Sensitivity Studies? If not, why not? If so, where is the evidence?

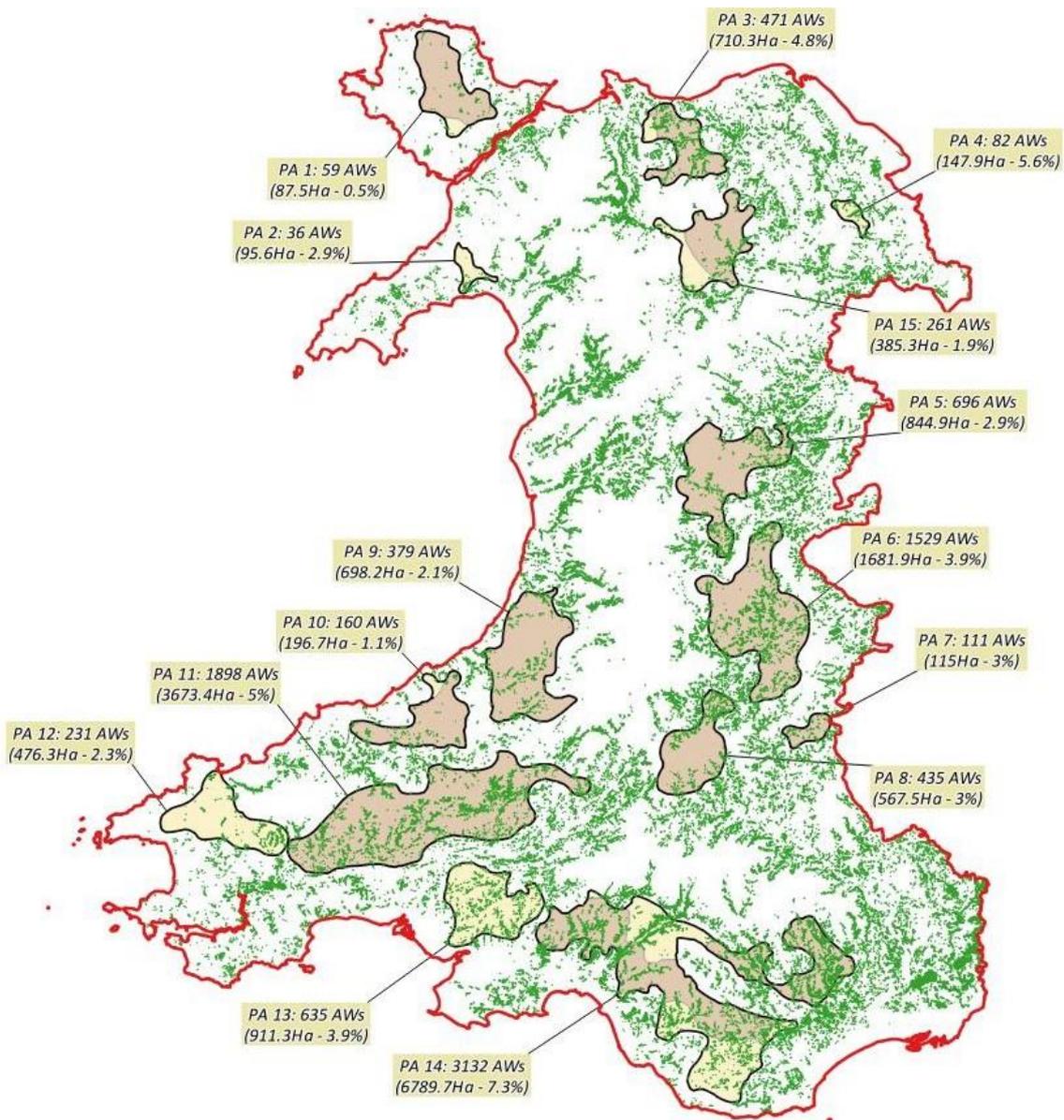
9. ARUP 2: p148 Fundamental errors in ‘Primary settlements – population’ map (extract below):

There are fundamental inaccuracies: 5 of the named settlements are not mapped at all - 1, 2, 41, 88, 89; around half of the settlements mapped are incorrectly identified. These are fundamental errors which it is astonishing to find in finalised documents put out by Welsh Government for public consultation as evidence for policy which will massively impact the whole of rural Wales for the foreseeable future. This has to cast serious doubt on the adequacy/accuracy of ARUP reports as a whole as an evidence base for major policy change. See map reproduced below.



10. Ancient Woodland:

Identified as a 'fixed constraint' in ARUP 2 Table 2 'Fixed Constraints' p 10, but there is no mapping of ancient woodland, and no exclusion of ancient woodlands in the definition or refinement of PAs. The relaxed planning regime, and presumption of approval, (see NDF Policy 10) proposed within PAs will not protect this important and irreplaceable asset. See map below which indicates the number and extent of Ancient Woodlands contained within PAs.



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Wind & Solar Priority Areas digitised from Welsh Government document "Draft National Development Framework".

We give this as one example. See Constraints Table Appendix 1 for further comments on application of constraints.

11. ARUP 2 9.5.2 pp46-50 Rationale for revised Priority Areas for Wind and Solar Energy – further comment

ARUP 1 identifies 'unrefined PAs' for refinement within ARUP 2. Unrefined PAs include 'areas of greatest opportunity' and 'areas of varying opportunity' i.e. unrefined PAs will by definition include constrained areas. It follows that rigorous refinement should follow, preferably using clear, transparent criteria and rigorous GIS mapping. However, pp 46-50 set out notes on a Welsh Government/NRW workshop which is the only source for refinements made to PAs. See our notes below on the workshop discussion:

Refinement of particular PAs

- a) P47 PA3: 'The area has been extended to the east to incorporate all of TAN 8 SSA A'. This in fact refers to new PA 15, which is therefore defined according to two entirely different sets of criteria. There can be no rational justification for defining PAs by one set of criteria and then throwing n areas from the SSAs, which were defined by a completely different set of criteria and have been already ruled out by the ARUP criteria for PAs, but will now be subjected to the presumption of approval and reduced protections of Policy 10.

- b) P47 PA5: Inclusion of SSA B – see a) above. *‘The boundary of this area has been pulled back to avoid Llandrindod Wells.’* Llandrindod Wells lies to the south of PA6, which is in turn to the south of PA5. This is nonsense. Has the author been relying on ‘Primary Settlements – population’ map? (see 8. above)
- c) P47 PA6: Inclusion of SSA C – see a) above. Reference to the Brecon Beacons suggests limited knowledge of local geography. The town of Rhayader sits within the boundaries of this PA.
- d) P48 PA8: *‘Priority Area for Wind and Solar Energy 8 has been reduced to remove areas of high visibility from the Brecon Beacons to the south’.* PA8 lies on high ground, and development of 150m/250m turbines within PA8 will be very visible from large swathes of the National Park. The reduction creates a wholly inadequate buffer of as little as 2.5km in places. This is presented as a concession **but in fact** the feeble buffer represents amounts to a failure to have regard to the purposes of the National Park.
- The author notes that the Ministry of Defence have yet to be consulted about the inclusion of the military zone and its buffer within this PA. This is a serious oversight. See 12 and 14 below.
- e) P48 PA11: We note 3km buffers introduced around ‘historical assets’ which exceed the buffer given to the Brecon Beacons National Park.
- f) P49 PA13: *‘The gap in the middle has been closed.’* This is incomprehensible. The ‘gap’ will be the consequence of application of a fixed constraint which can’t be traded for an area to the north of the PA to neaten up its shape. Removal of a northern area has the incidental ‘added benefit’, apparently, of buffering the Brecon Beacons National Park.
- g) P49 PA14: *‘Where possible, centres of population have been moved.’* incidentally buffering the Brecon Beacons National Park, and refinement to *‘avoid development right up to the boundary of the Brecon Beacons National Park’* has incidentally removed centres of population. *‘Areas with more than 50% visibility from the Brecon Beacons National Park have been removed.’*

General refinement questions

This refinement exercise and in particular the comments on PA11 give rise to many questions as to the underlying principles of refinement:

- Shouldn’t ‘centres of population’ all be excluded? What is the definition of ‘centres of population’ and what is the protocol for excluding some and not others?
- Why aren’t National Parks always buffered from PAs? What are criteria for buffering and why are these not uniformly applied?
- What are the criteria for determining unacceptable visibility from National Parks? This is not at all clear to the reader.
- Has the consequence of including land areas within several PAs which are defined by entirely different criteria (TAN 8) but will be subject to the same permissive planning regime been considered? If not, why not?
- What is the justification for replacing the relatively logical and evidence based AECOM Toolkit methodology with this unsatisfactory make-it-up-as-you-go-along approach?

This refinement exercise appears illogical, inconsistent, subjective, misconceived and sometimes just ignorant and wrong. It is fundamentally flawed and completely unacceptable.

Appendix I, notes on stakeholder workshop, appears to suggest that some parts of the refinement exercise were carried out as a result of a conversation between Arup experts, Welsh Government and NRW officials rather than being a rigorous and evidence-based exercise. This is an unacceptable basis for decisions which have the potential to compromise our environment and biodiversity, impact on rural well-being, devalue people’s houses and potentially negate life savings, and mortally wound the Welsh tourism industry. The refinement exercise appears to have been a hasty exercise, completed without due diligence or attention to local factors.

Design guidance:

It is proposed that design guidance (ARUP 2 p24) will adequately remedy the faults within the PA mapping methodology and provide protections which Policy 10 does not. This is a misconception. Policy 10, as **policy**, with the wording “presumption of approval”, will be paramount in decisions on site-location and **design guidance** will only contribute to “mitigation”. It is essential that proper protections are enshrined in **policy wording**.

12. ARUP 1 Refinement themes identified

ARUP 1 contains many pages of discussion of methodology, if such a user-flexible collection of potential options can be called a methodology. This is distracting and makes it difficult to get a clear understanding of the process adopted by ARUP in establishing first the unrefined PAs, and then refining these initial areas.

However, looking at p24 ARUP 1 and p18 ARUP 2, it is clear that the ‘unrefined PAs’ as identified in ARUP 1 have not yet been adjusted for the factors identified on page 25 ARUP 1 and in Table 9 p26 ARUP 1:

- a) P25 ARUP 1 recommends analysis of the following factors: **grid** – capacity and cost of connection; **landscape; access; land ownership**. It also recommends consideration of **existing wind and solar sites**, and assessment of **wind speeds** within ‘unrefined PAs’;
- b) Table 9 sets out specific concerns relating to Areas 002 to 008 (where is 001?) which are described but not mapped so their extent is not clear, but potential issues emerge as in a) above.

Many of these factors would have lent themselves to further rigorous constraints mapping to exclude areas according to a more appropriate set of criteria. Instead, the process followed is set out on p43 ARUP 2, and indicates that while evidence has been gathered and presented by ARUP to workshops with Welsh Government and NRW, no further GIS criteria mapping has been used to refine the PAs, which have instead been subjected to the capricious and subjective consideration described in 11 above.

It is unclear how much of the mapping evidence made available by ARUP to Welsh Government (pp12-42 ARUP 2 & Appendices) has actually fed into the untransparent refinement process.

13. ARUP 1: Fixed, variable & overlay constraints Appendices B and C ARUP 1

Appendices B and C ARUP 1 contain lists of ‘fixed’, ‘variable’ and ‘overlay’ constraints. ‘Fixed’ are intended to be excluded from consideration for RE development, ‘variable’ to be applied according to user-preference, and ‘overlay’ are described in Appendix A Step 3 as ‘grid infrastructure’. No clear rationale is provided for this categorisation, 11 and 12 above point to significant problems arising.

In our opinion, the following ‘variable’ constraints should be redefined as high risk ‘fixed’ constraints, excluded from consideration for RE development:

- Peat deeper than 45cm
- SSSIs
- NNRs
- LANDMAP V&S: high and outstanding
- Open Access land
- RIGS
- BMV Agricultural land

And the following, not included in variable list, included as high risk:

- UNESCO biosphere
- Both Welsh Geoparks (i.e. including Geo Mon Anglesey Geopark)

This would have ensured the exclusion of these ‘variable’ constraints from search areas for PAs.

The following, included within list of ‘overlay’ constraints, are not infrastructure, and should have been included as either fixed or variable constraints, buffered as appropriate:

- LANDMAP Geological high & outstanding
- LANDMAP habitats high & outstanding
- Flood Zones 2 & 3
- Scheduled Ancient Monuments with buffer [*Powys LDP – 500m buffer applied for both wind and solar technologies*]
- Registered Parks
- Tranquil Areas
- Existing wind and solar
- Active travel routes
- Protected landscapes, environmental & heritage sites buffers
- Existing RE sites
- Steep slopes
- Buildings

And the following should also be included:

- LANDMAP historic landscape high & outstanding
- LANDMAP Cultural high & outstanding

While we contend that constraints (as shown in Appendices B and C ARUP 1) should be upgraded *and* further constraints applied, many of the constraints in ARUP 1 do not appear in the ARUP 2 lists of constraints **actually applied**. Others have been downgraded from ‘fixed’ to ‘variable’. PAs contain areas of ‘varying opportunity’, which are so-classified because they contain “variable” constraints, and thus PAs are full of variable constraints.

Constraints maps would have been useful, in the manner of the Step by Step mapping in AECOM 2017 REA for Powys LDP to throw light on the treatment of constraints.

Note: ARUP 1 list of fixed constraints includes the following note:

‘MoD to send data on the following:

- MoD estate
- Assessment undertaken by their radar engineer based on the maximum turbine height provided to them by Arup.’

ARUP 2 has proceeded without this information. It appears that a relatively ordered process in ARUP 1 has given way to a confused rush to finalise the ARUP 2 stage. This has led to downgrading of assumptions in ARUP 1, and failure to follow through recommendations for refinement. The impression is of Welsh Government demanding the identification of the largest PAs possible, as soon as possible.

The identification of constraints in the identification of PAs should reflect the implications of the permissive policy which is intended to apply within designated PAs. **Policy 10, with its reduction of environmental and other protections, dictates that the most rigorous exclusion criteria should be, but have not been, employed in the determination of PAs. Welsh Government is therefore failing in its responsibilities for protection of residents and biodiversity, required under international and domestic legislation, and in its commitment to sustainable development and the sustainable management of natural resources.**

14. Priority Area 8 Inclusion of MOD SENTA training area and buffer

The MOD SENTA Training Area is currently in active use for live firing and is an exclusion zone. Rights of access are strictly confined for safety reasons. Most of the SENTA training area lies within PA 8. The MOD is unlikely to support designation of their training ground as a PA. Development is unlikely to be suitable where there is a risk of unexploded ordnance.

Although AECOM, in the Powys LDP 2016 REA, recognised the SENTA Training Area as a constraint, the MOD expressed concerns about the potential for wind and solar development in the proximity of the training ground to impact on future utility of the training area. The risks posed by wind turbines on low flying of helicopters and aircraft, and on radar function, and the risks from solar glare, necessitated buffers of 10km and 3.5km

respectively, which were agreed with Powys County Council and set out in Statement of Common Ground dated June 2017. This is available on the Powys website: <https://en.powys.gov.uk/article/5365/Supporting-Evidence> . A 10km buffer applied around the SENTA training area includes the whole of PA 8, and also the southern tip of PA 6.

ARUP 1 Appx B contains ARUP recommendation that military requirements be discussed with MOD. There's no indication this advice has been followed.

This omission from ARUP's work in identifying PAs suggests that no discussions have been held with Local Planning Authorities as to constraints operating in their areas.

To the west and north of the SENTA Training Area is a large MOD Low Flying Tactical Training Area, which again has not figured as a constraint within ARUP methodology.

15. ARUP 2 p155 E1 'Grid Capacity results' lacks explanation or justification

This table presents 4 scenarios for each PA, the first headed 'To meet renewable energy target', where the target itself and the basis for setting the target are unstated. To give an example, for PA7, the first column shows what is assumed to be a target of 62MW, but then presents 3 scenarios, headed 'Low coverage', 'medium coverage' and 'high coverage' of 66MW, 329MW and 657MW respectively. The method of arriving at the targets requires explanation, as does the meaning of the 4 scenarios and the intention lying behind their identification. For instance, is it really intended that upwards of 250 industrial scale turbines are to be built in PA7, adjacent to Hay-on-Wye, facing the northern escarpments of the Black Mountains in the Brecon Beacons National Park, overlooking the Wye Valley Registered Historic Landscape and largely made up of National Trust land which is huge favourite with visitors and residents, on foot, bicycle and horse?

The information in this table is required for an understanding of the proposals but we know neither how it was derived nor what it means.

Targets and cumulative impact:

It is not clear whether development within and in proximity to the PA has been taken into account in setting targets for the PAs or whether the cumulative landscape and visual impact has had any role in informing drawing of PA Boundaries. PPW10 refers LPAs to the Renewable Toolkit which expects such a cumulative assessment to be undertaken, as was done for TAN 8. Paras 8.4 and 8.5 (TAN 8 p63):

8.4 Within (and immediately adjacent) to the SSAs, the implicit objective is to accept landscape change i.e. a significant change in landscape character from wind turbine development.

8.5 TAN 8 (and the work on which it is based), therefore, considered cumulative landscape and visual impacts at the all-Wales level. The strategy adopted is a means of concentrating the impact of wind turbines in a relatively small proportion of the country in areas that are, on balance, technically, practically and environmentally better able to accommodate such impacts than other parts of Wales.

The Welsh Government did consider the cumulative impacts for TAN 8 but has dropped this step, which is still recommended by the WG in PPW 10, for the NDF

Solar efficiency: The solar 'panel efficiency' (or Capacity Factor) of 22% claimed by Arup at Stage 1 para 2.5.1 and described in the cited source is not valid for UK conditions and contradicts that defined at Energy Generation in Wales (EGW) p6 as 12%. This exaggerates output claims made by Arup.

16. New methodology for identification of Search Areas – neither explained nor justified

PPW10 says '**Welsh Government Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners** provides guidance on how an evidence base can be developed. It includes guidance on developing a Renewable Energy Assessment, Energy Opportunities Plan and Strategic Sites Assessment, and how this can be translated into planning policies' (5.9.3). While PPW is clearly supportive of RE development and search area identification, 5.9.4 says Local Planning Authorities must '**direct developments to the right locations and set out clearly the local criteria against which proposals will be evaluated**'. 5.9.12 states '**The**

SSAs are the most appropriate locations for large scale wind farm development' and 5.9.15 states that Local Planning Authorities should identify those areas within SSAs which are suitable.

In other words, PPW supports use of the Renewable Energy Toolkit, recognises the desirability of refining high level search areas, and recognises the importance of the right development in the right place, achieved by the application of appropriate local criteria.

We contrast the Renewable Energy Toolkit and ARUP methodologies for the identification of search areas below.

Extract from AECOM Renewable Energy Toolkit p136:

Methodology

You can access the accessible wind resource for your local authority area, using GIS constraints mapping, by following the steps below:

- Step 1: Decide on typology of wind turbine to use for the assessment
- Step 2: Map average annual wind speeds
- Step 3: Map environmental and heritage constraints
- Step 4: Map transport infrastructure constraints
- Step 5: Map existing dwellings and a noise buffer
- Step 6: Map existing aviation and radar constraints
- Step 7: Prioritise available wind resource
- Step 8: Assess potential installed capacity and energy output
- Step 9: Assess cumulative visual and landscape impact issues and reduce resource accordingly

ARUP Methodology

Step 1: Define high risk areas. Although there is so much extraneous information that it is quite hard to establish exactly what has been done, it seems (3.2 ARUP1) high risk constraints are identified where any 250m x 250m square contains 50% or more of that constraint, meaning that some linear features, and edges of larger features will not be recognised. High risk constraints are listed in 'Table 1: Constraints applied to define the high risk areas for onshore wind and solar energy development' ARUP 1 Appx A pp4-5, but there are changes between this list and the list at p10 ARUP 2 (see 13) as actually applied to define PAs.

Step 2: Define low risk and medium risk areas, by user self-selection of further constraints. These user-variable constraints, are found in 'Table 2: User-variable constraints applied to create user defined high risk areas, which are added to the high risk base layer'. They include peat deeper than 45cm, SSSIs, agricultural land Grades 1 and 2, Open Access, Historic Landscape and more, all of which can be omitted from consideration, should the user choose. Again changes have been made to arrive at the list applied to define PAs – ARUP 2 Table 3 p11 (see 13), and identified constrained areas are, in any case, included in PAs.

Step 3: Overlay grid infrastructure. This step is also user-led and will not restrict identified areas. Although the step is defined as 'overlay grid infrastructure', this is in fact where flood zones, steep slopes, buffering of protected sites and landscapes and other considerations will, or will not, be brought into play. Overlay user-variable constraints are found in 'Table 3: Overlay layer User-variable constraints applied to create user defined high risk areas, which are added to the high risk base layer'. There's no indication this step has been followed in refining PAs. See notes on refinement process 11 & 12.

Step 4: Define resource availability: by consulting ‘Table 4: Wind turbine assumptions’ or ‘Table 5: Solar panel assumptions’ and calculate potential output by reference to ‘Table 6: Method for calculating energy output of a given area’. The selection of ‘energy output calculation methodology’ is presented but not explained in Section 3.3 p21 ARUP 1. Method 2 ‘**based on unconstrained resource**’ has been chosen even though it is not consistent with the Renewable Energy Toolkit and for both wind and solar it is stated that ‘***This method may overestimate the wind [or solar] resource available for a site making it an unreliable approach for developers***’. **Key data is not provided** e.g. reference turbine, capacity factors, solar efficiency (see 15).

Scenarios: Appx B ARUP 1 sets out 4 scenarios, from ‘**Scenario 1 – minimum constrain, maximum output**’ through to Scenario 4 – maximum constraint, minimum output’. **In defining PAs constraints applied are set out in ARUP 2 BUT see Constraints Table Appendix 1.**

ARUP Methodology - presented in ARUP 1 - has been developed on the hoof, despite the existence the AECOM Renewable Energy Toolkit. The input of stakeholders including the industry is admitted. This makes sense with the all-important proviso that the resulting methodology is not skewed by industry interests, respects the needs of other interest groups, and in particular provides for appropriate protection of rural residents, the environment and the landscape.

Problems:

1. Welsh Government has not explained or justified the abandonment of their own guidance on the identification of PAs, which are high level search areas for wind and solar i.e. the very thing the Renewable Energy Toolkit methodology has been designed to identify.
2. There is a fundamental mismatch between a) the application of a minimum-constraint search methodology, creating high level search areas for RE development within which are known to be multiple constraining factors, and then b) applying to those search areas a permissive policy (Policy 10) which will downplay the weight given to environmental, amenity, landscape and other constraints. The Welsh Government is failing in its duty to protect its citizens and environment, and its obligations to support sustainable development and sustainable management of natural resources.

17. ARUPs 1 and 2 and Executive Summary: Document verification

1. ARUP 1 Document Verification form included at p2. Identifies authorship, versions, and is signed off ‘final’.
2. ARUP 2 No Document Verification form included, no indication of authorship, checking and sign off etc.
3. ARUP Executive summary stage 1 and 2 contains a document verification form, though any changes made between 8th July 2019 (signed off) and 12th July 2019 (not signed off) don’t have explicit authorisation.
4. ARUP document control and verification is inadequate.

HABITATS REGULATIONS ASSESSMENT

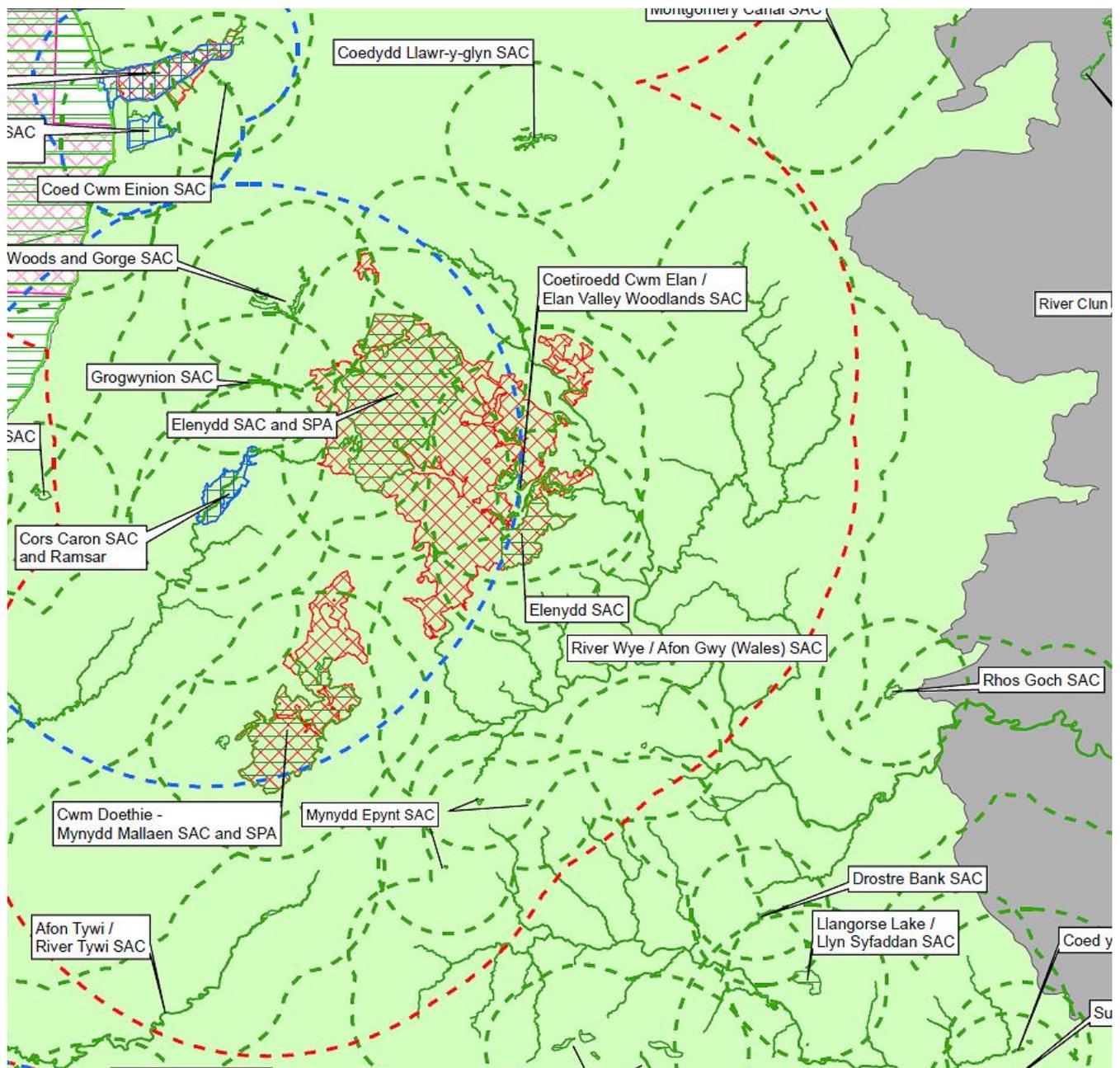
1. Inadequate buffering of protected environmental sites: Elenydd Mallaen SPA buffer

The HRA (Version 2) (p6) states ‘*The buffer distance set for birds is greater than for bats mainly because certain birds associated with SPAs and Ramsar sites (e.g. raptors, wildfowl & waders, etc.) tend to readily fly greater distances as part of their foraging behaviour. Thus, birds associated with a designated site are certainly not confined to the boundaries of that location and will often fly some distance from it to feed, roost or breed. This is the basis of the concept of ‘functionally-linked land’ and the fact that HRAs of SPAs need to take into account*

the fact that birds from the designated population will often spend time outside the designated area. Whilst this is very unlikely to be an issue for solar farms (although the presence of such features could displace birds from areas they would previously have used), there certainly is a risk of mortality associated with wind farms, even if they are some distance from the border of a Natura 2000/ Ramsar site supporting birds. **The buffer zone for SPAs (and for Ramsar sites where the qualifying features include bird species) has therefore been set at 20km.'**

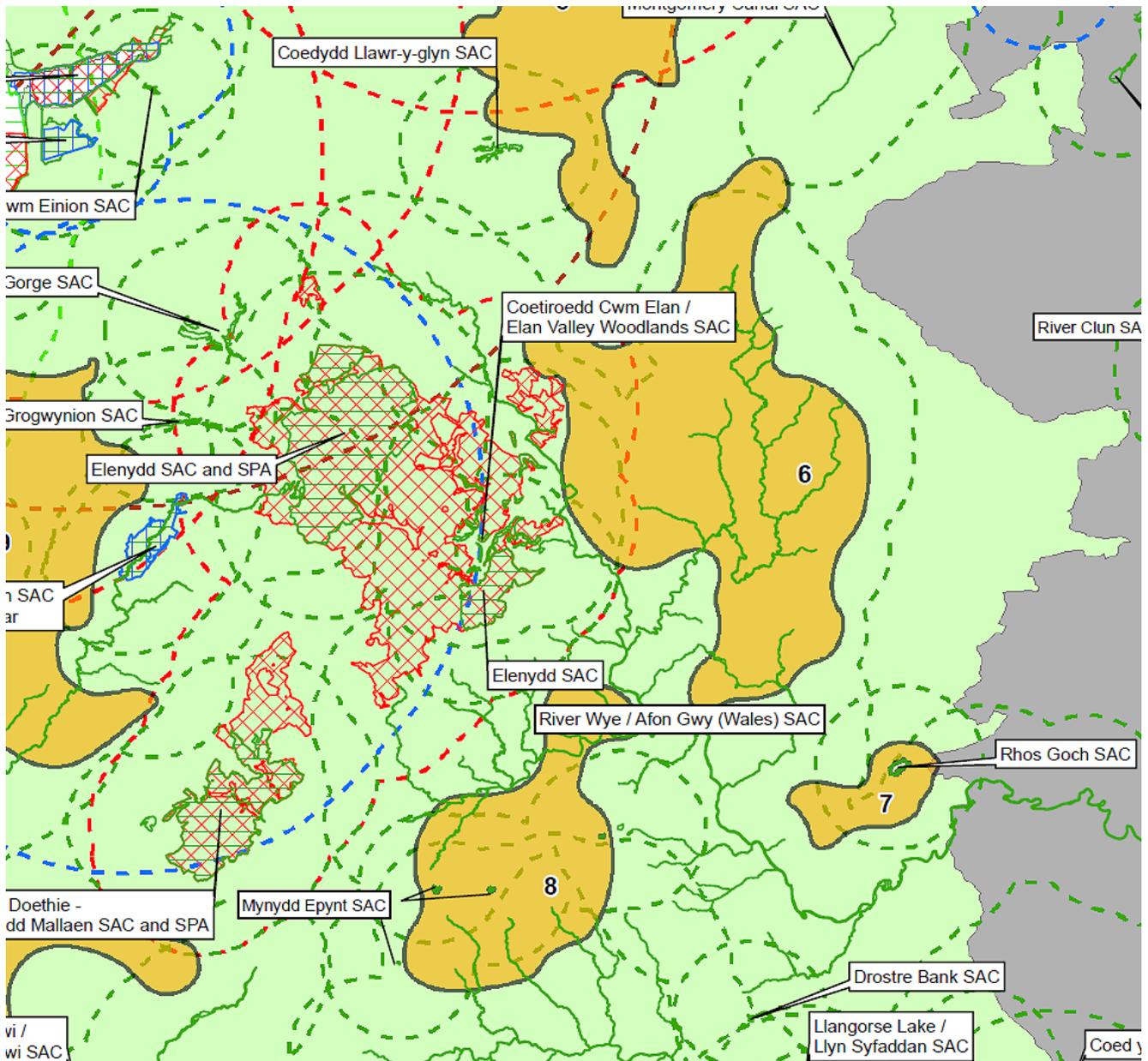
And further on: 'These buffer zones are very important with regard to future consideration of wind and solar farm development both within and beyond the new Priority Areas for Solar and Wind Energy. Essentially, these buffers should aid the HRA Screening process for subsequent renewable development proposals. Any proposed wind or solar development that is outside the buffer zone for any Natura 2000/ Ramsar sites can be screened out of HRA, as it can be assumed that significant impacts are extremely unlikely. By contrast, any proposed wind or solar farm within a buffer will need to be screened.'

HRA Appx A (Habitats Regulations Assessment: Rules of Thumb) p34 'Figure 2: Detailed view of Natura 2000 sites with site buffers Page 4 of 8': Red dotted line indicates 20km buffer for Elenydd-Mallaen SPA. See extract reproduced from this map below:

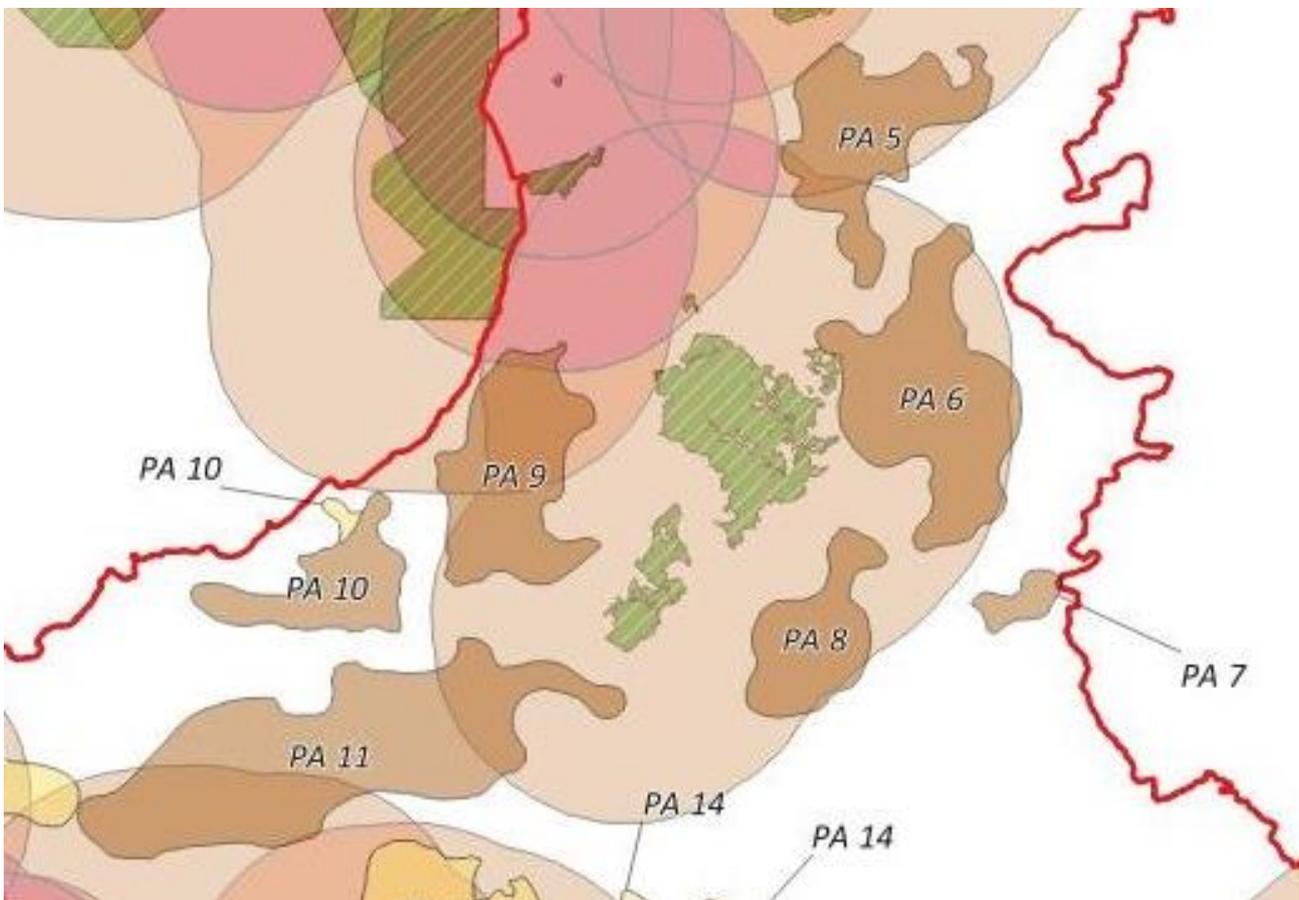


By contrast, HRA Appx B 'Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000/Ramsar Sites with Site Buffers Page 4 of 8': the dotted red line buffer around Elenydd-Mallaen SPA, while still indicated on the key as 'Special Protection Area Buffer' is now set at 5km around the SPA, not the 20km referred to in the text as required.

See extract reproduced from this map below, and contrast dotted red line buffer with map above:



Now see CPRW map below, which indicates the correctly drawn **20km** buffer around the Elenydd-Mallaen SPA on a base map which includes the refined PAs, and so indicates which PAs lie **within** the foraging buffer of the Elenydd-Mallaen SPA i.e. parts of PAs 5 and 11, and almost the entirety of PAs 6, 8 and 9.



Note that species within the management plan for the SPA include peregrine (*Falco Peregrinus*). From p7 of the HRA (version 2): ‘...any proposed development that is within 10km of a site supporting peregrine or hen harrier is likely to struggle to pass the HRA test, as it will be difficult to ‘demonstrate beyond reasonable scientific doubt’ that birds associated with the SPA/Ramsar site will not be vulnerable to impacts (such as disturbance or wind turbine/vehicle collision). **This is because the known foraging distances for hen harrier and peregrine from the literature are 10km and 18km, respectively.**’

It’s clear that the HRA Appx B, subtitled ‘Implications for the Natura 2000 network of Priority Areas of Solar and Wind Energy development across Wales – HRA Report’, fails to accurately map the required buffer for this SPA against the locations of refined PAs. In consequence, the HRA does not recognise the fact that PAs and parts of PAs lie entirely within the foraging buffer of the SPA and **the implications of the PAs on the Natura 2000 network are therefore substantially underreported.**

Rhosgoch Bog SAC: See 2 (c) above: the inclusion of protected sites such as Rhosgoch Bog SAC (in PA 7) entirely within PAs means that any requirements for buffering of these sites are entirely unrecognised in the identification of the PAs, as is protection of the sites themselves.

Note: We have selected the Elenydd-Mallaen SPA and Rhosgoch Bog SAC as examples for the purpose of this critique. There may be other instances of similar errors and inconsistencies.

INTEGRATED SUSTAINABILITY APPRAISAL REPORT

1. ISA Table A-1 ‘Comparison between NDF Preferred Option Objectives and the National Sustainable Place Making Outcomes (PPW)’ (pp70-71) is unexplained

This table has two columns and appears to have the function of relating ‘NDF Preferred Option Objectives’ to their corresponding ‘Key Planning Principles and National Sustainable Placemaking Outcomes’ but the following categories of ‘NDF Preferred Option Objectives’ have no counterparts:

- Natural Resources, Circular Economy and Flooding,
- Welsh Language,
- Health & Well-being,
- Digital Infrastructure and
- Cohesive Communities.

What does this mean? Are there no place making outcomes for these objectives? The table requires either completion, or explanation.

OTHER EVIDENCE DOCUMENTS

1. Significant divergence from Preferred Option, out for public consultation in 2018

Distinctive and Natural Places p19, DN3: *'Nationally important landscapes, seascapes, nature conservation sites and habitats will be identified. Opportunities for growth, expansion, greater connectivity and enhancement will be identified.'*

Productive and Enterprising Places p20, Spatial Issue PE1: *'Nationally important energy generation, storage and distribution infrastructure will be identified. Locations for new national scale renewable and low-carbon energy generation, storage and distribution infrastructure will be identified.'*

PE1 Strategic Policy Direction: *'NDF policies will support the delivery of the Welsh Government's renewable energy targets including 70 per cent of electricity consumed in Wales from Welsh renewable sources by 2030 and locally owned renewable energy capacity in Wales, reaching 1 GW by 2030. Policies will support generation through a range of renewable and low carbon technologies, storage and distribution infrastructure.'*

These instances (our underlining) illustrate some of the unacceptable divergence between the documents consulted in 2018 and the draft National Development Plan now out for consultation, as these themes have not been brought forward and developed within the current draft.

2. Cumulative mapping within Regional Studies is not used to inform definition or refinement of PAs <https://gov.wales/national-development-framework-study-regions-and-rural-areas>

Map 07 Renewable Energy, dated 1st March 2019, is based on REPD database information dated 1st April 2018, considerably out of date even when the map was prepared, and not always reliable. Resulting errors in the mapping include, to give a few examples:

1. Cefn Croes WF omitted
2. Brechfa omitted WF - commissioned Jan 2019
3. Brenig WF omitted - commissioned Jan 2019
4. WFs under construction, Mynydd y Gwair, Clocaenog and Bryn Blaen are all omitted

This, albeit inadequate, mapping has been produced for stakeholder workshops, but there is no mapping of existing and consented RE within the ARUP documents to inform an understanding of cumulative issues, very significant, for example, between PAs 5 and 6, and consequent refinement of PAs.

ARUP 2 Appendix I: Notes of stakeholder meeting – NRW raised the issue of the distress which may result from a cumulation of developments, but this is dismissed with a promise of planning guidance, instead of the investigation of existing developments and consents. **Any planning guidance is unlikely to be formulated and in force by the time the NDF itself is operative.** Cumulative studies should have formed an integral part of the designation of PAs.

(NB Attendees at this meeting also propose that a 'very public conversation evaluating the benefits of increased renewable development against potential landscape impacts' although this would be entirely pointless unless the results were incorporated into a revised NDF.

3. Failure to reference National Marine Plan

Planning Act Wales says: "*The Framework must explain how, in preparing the Framework, the Welsh Ministers have taken into account relevant policies set out in - a) any marine plan adopted and published by them under Part 3 of the Marine and Coastal Access Act 2009.*"

The National Marine Plan was published on 12th November. Themes within the Plan will have been well developed while the dNDF was in preparation. Failure to reference the Marine Plan within the dNDF renders the RE strategy within the dNDF fundamentally incoherent. Extracts from draft Marine Plan:

603. *'The Welsh Government supports the nuclear energy sector, in particular development on existing sites such as Wylfa Newydd. Whilst nuclear energy is an important means of energy supply in Wales, it has not been a major consideration of this plan with most strategic decisions taken at a UK level and guided by the relevant National Policy Statement.'*

608. *'Welsh Government has considered alternatives to the need for large scale deployment of marine renewable technologies and concluded that, whilst opportunities such as reducing demand, supporting other technologies and supporting wider connectivity will make important contributions to climate change mitigation, there is a strategic need to develop marine renewable energy generation capacity.'*

609. *'The Welsh Government is therefore strongly committed to unlocking the energy potential from Welsh waters.'*

617. *'Wind energy is a proven and strategically important energy technology and the costs of deployment are decreasing rapidly, making this a viable and attractive renewable energy option for the Welsh plan area. There is considerable scope for further large-scale offshore wind activity in Welsh seas given the extent of the potentially viable resource, the geography of the seabed, and developing technologies. Further sustainable offshore wind developments in the plan area are strongly encouraged including extensions to existing projects.'* [Our underlining]

Any rational national low carbon and renewable energy strategy must bring together onshore and offshore components and different technologies into a coherent whole. Hence no doubt the Planning Act requirement above.

The following statement within the National Marine Plan should also be developed, explained and justified within the dNDF:

610. *'Wales is already a net exporter of electricity and the Welsh Government aims to further improve this status within a diversified supply ...'*

4. WELSH ASSEMBLY commissioned research on RE and emissions strategy not followed

'Addressing the Climate policy Gap in Wales' July 2019 [Author Dr. Filippos Proedrou, copies available from the National Assembly]: This National Assembly Research Briefing document should have and been key piece of evidence informing the dNDF approach to RE development. The briefing calls *'for bolder climate targets in line with climate science and proportionate carbon budgets to the effect of carbon neutrality before 2050'* within the context of Welsh legislation, including the Well-being of Future Generations Act.

P2 Executive Summary: *'The energy transition can take a predominantly top-down and centralised, or bottom-up and decentralised form. While both dimensions are indispensable, **the Well-being of Future Generations Act mandates strong citizen engagement in the co-production of energy and participation in energy decision-making, and hence conveys a strong bottom-up flavour to the energy transition. At the same time, climate performance will be more effective if it embraces the majority of the population in this grand endeavour.**'*

This is reiterated on p22: *'The energy transition must have a clear bottom-up component, premised upon citizen engagement and participation in both energy production and decision-making. This still leaves ample room for centralised clean energy production schemes.'*

This is the clearest possible advice that Welsh Government's own legislation obliges it to take a very different, bottom-up, consensual, approach to RE generation and emissions reduction, and that doing so will in fact be more effective.

PROCEDURAL ERRORS IN RUNNING OF CONSULTATION

1. Changes to documents made during consultation period:

Revised HRA and appendices, and revised ISA, were placed on the consultation website on 28th and 21st August respectively, we understand. Members of the public were notified, where this was possible, on 17th October. The consultation period was extended by two weeks to reflect the date of correction, not the date on which (some of) the public were made aware of substantial changes having been made to key documents mid-consultation. It is doubtful whether any public announcement of the changes and explanation of what form the amendments took would have been made had CPRW not written to Russell Dobbins on 4th October to express extreme concern over unannounced changes to documents mid-consultation.

Many changes appear to be the correction of errors. Others are more fundamental, for example the replacement in the ISA of: *'the NDF seeks to maximise onshore wind and solar energy generation potential, whilst minimising the potential impact on the most sensitive environmental and cultural assets. However, it is accepted that large scale renewable energy development can be visually prominent'* by *'there is a presumption in favour of large scale on-shore wind and solar energy generation potential in the Priority Areas for Renewable Energy, an acceptance of landscape change and a focus on maximising benefits and minimising impacts. However, 'large scale wind and solar renewable energy development can be visually prominent.'*

In sum, changes set out in 'Extension of Consultation on Draft National Development Framework: Changes to Habitats Regulations Assessment and Integrated Sustainability Appraisal Report' dated 17th October are significant in both number and impact, and were introduced mid-consultation. This is unacceptable without restarting the consultation.

2. ARUP 1 AND 2 – failure to publish, failure to publish on consultation website

These two key documents, evidencing the methodology underpinning Welsh Government's designation of 1/5 of Wales's land area for lax planning protections and the encouragement of industrial scale development across swathes of populated rural Wales, were not initially published at all. They were only made publically available on the request of CPRE Shropshire. They have never been published on or prominently linked to the consultation website. This is a very strange way to conduct a public consultation on policy set to radically transform life in rural Wales.

BIBLIOGRAPHY:

AECOM Toolkit: Planning for Renewable and Low Carbon Energy - A Toolkit for Planners (September 2015)

(<https://gov.wales/publications>)

AECOM Final Report: Powys Renewable and Low Carbon Energy Assessment 2017 (May 2017)

<https://en.powys.gov.uk/article/5365/Supporting-Evidence>

AECOM Final Report: Powys Renewable and Low Carbon Energy Assessment 2017 – Maps, Companion Report (May 2017) <https://en.powys.gov.uk/article/5365/Supporting-Evidence>

ARUP 1: Welsh Government Assessment of onshore wind and solar energy potential in Wales Stage 1 - Development of Priority Areas for Wind and Solar Energy (March 2019)

ARUP 2: The Welsh Government Assessment of onshore wind and solar energy potential in Wales Stage 2 - Refinement of Priority Areas for Wind and Solar Energy (June 2019)

PPW10: Planning Policy Wales Edition 10 (December 2018)

TAN 8: Planning Policy Wales Technical Advice Note 8: Planning for Renewable Energy

GLOSSARY:

ALC: Agricultural land classification

AONB Area of Outstanding Natural Beauty

BMV: Best and most valued

CAA Civil Aviation Authority

LANDMAP V&S LANDMAP Visual & Sensory Layer

LLPG Local Land and Property Gazetteer

MOD Ministry of Defence

NATS National Air Traffic Services

NGO non-governmental organisation

NP National Park

OS Strategi Ordnance Survey Open Data dataset

PA Priority Area

RAMSAR wetlands designated under the Ramsar Convention

RE renewable energy

REA Renewable Energy Assessment

RIGS Regionally important geological and geomorphological sites

SAC Special Area of Conservation

SAM Scheduled Ancient Monument

SENTA Sennybridge Training Area

SPA Special Protection Area

SSSI Site of Special Scientific Interest