

Summary of Representations received on 'Planning for Dark Night Skies' draft SPG for lighting in the Clwydian Range and Dee Valley AONB

Name/ Organisation	Paragraph/ Section	Summary of Representation	Council's response	Changes proposed to the draft document
Ministry of Defence	General/ Para 1.20	<p>The airspace over the Clwydian Range and Dee Valley areas forms part of the UK military low flying system that is used to manage the provision of military low flying training.</p> <p>If the development of tall or narrow profile structures were to be proposed in the AONB, it may be necessary for such structures to be fitted with visible aviation warning lighting compatible with MOD lighting specifications.</p> <p>It is noted that the proposed SPG does not seek to eliminate all lighting within the AONB and recognises the need for developments to include lighting needed to meet health and safety requirements (ref. para. 1.20). On this basis the MOD considers that the proposed guidance makes suitable provision to enable visible aviation warning lighting to be fitted to new development occurring in the area should this be identified as necessary. Accordingly, I can confirm that the MOD has no concerns with the content of the draft SPG</p>	Noted.	No changes proposed
The Canal & River Trust	General	The Canal & River Trust have reviewed the document and have no comments to make.	Noted.	No changes proposed
Buglife – The Invertebrate Conservation Trust	General/ Para 5.10	<p>We believe this guidance is well prepared and covers topics affected by increased artificial light at night. If correctly followed and implemented the guidance could deliver a reduction of light pollution. The need to address existing light pollution is crucial and should not be ignored in planning. We encourage all planning guidance to reduce existing light pollution and commend the AONB for acknowledging this. A step further would be to place conditions on any projects to redevelop sites or replace lighting should result in reduced light pollution levels.</p> <p>Buglife welcomes the inclusion of consideration for invertebrates in this guidance. The design guidance goes some way to addressing the issues impacting invertebrates. Below are additional comments for consideration.</p> <p>Wavelength:</p>	<p>Support noted.</p> <p>When commenting on planning applications the AONB often requests such conditions which are agreed by the planning authorities.</p>	

		<p>Changing the type of light used; where possible using lighting that emits no UV light, or those at the red/orange end of the spectrum should be used as in general insects are not as attracted to them.</p> <p>Diurnal species: It is not only nocturnal invertebrates that are impacted by increased light. Many diurnal species also feel the effects of increased 'daylight' hours and a shortened night. Invertebrates such as butterflies have larvae that feed at night, a behaviour that helps them avoid predation. British butterfly caterpillars that feed at night include Wall brown (<i>Lasiommata megera</i>) and Grayling (<i>Hipparchia semele</i>) which are listed as priority species in the UK Biodiversity Action Plan (UKBAP) and include records within the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty. Other night feeding species found within the Clwydian Range and Dee Valley AONB, include Meadow brown (<i>Maniola jurtina</i>), Marbled white (<i>Melanargia galathea</i>) and Ringlet (<i>Aphantopus hyperantus</i>). It is likely that artificial lighting will impact the behaviour of night feeding larvae and will either make them much more susceptible to predation or inhibit their feeding.</p> <p>Thank you for the reference to our Review of the Impact of Artificial Light on Invertebrates. To note, our full name is 'Buglife – The Invertebrate Conservation Trust', if possible, could this be amended on page 16 (Para 5.10).</p>	<p>The SPG recommends that all external lighting should have a colour temperature of less than 3000 kelvin, which minimises the more intrusive blue-white light component.</p> <p>Noted</p>	<p>Amend Para 5.10 to refer to Buglife - The Invertebrate Conservation Trust</p>
Llandrillo Community Council	General	Why is Llandrillo not included?	<p>The SPG relates to the AONB. The Llandrillo Community Council area lies just outside the AONB. However, the guidance refers to the need to protect the setting of the AONB, which will therefore include some lighting developments proposed in adjoining areas which could impact on the setting of the protected landscape.</p>	No changes proposed
Jackie Holder	General	In my view street lighting could be cut down in respect of frequency of lampposts, strength of lights and duration of lighting. Maybe every other lamppost could be lit or all of them but with a lower level of light and I have always failed to see why quiet residential streets need to be lit up all night. Surely	<p>Noted Reducing frequency or removing every other street light causes a strobe effect for drivers which is dangerous and so not an option. All road lighting is designed to BS</p>	No changes proposed

		<p>they could be switched off at some agreed time such as midnight?</p> <p>There are other advantages too of less street lighting listed below;</p> <p>Less electricity used, which is good for council budgets and the environment. Better sleep quality for those who have to put up with them shining through windows/curtains all night</p>	<p>standard and uniformity is one of the main factors. Most roads have been installed at one of the lowest possible BS levels.</p> <p>DCC lighting is currently dimmed to 70% from 10pm to 6am, part night switch off is possible but would require public consultation and considerable investment.</p>	
Ashleigh I Woodroffe	General	<p>I am very pleased to see this proposal for maintaining and improving Dark Night Skies in North Wales by reducing light pollution.</p> <p>I am a keen amateur astronomer with disabilities so find it difficult to access places afar from my home to participate in my interest. It would be fantastic if the street lighting in Llangollen could be upgraded to help reduce light pollution and maybe less light used overall.</p> <p>I really hope this proposal comes to fruition and Dark Night Skies over North Wales can be restored and preserved</p>	<p>Support noted.</p> <p>DCC changed its lighting specification to 3000K 4 years ago at the request of the AONB and nothing with higher CCT has been installed since. Our specification has recently been changed to 2700K for ecological reasons.</p>	No changes proposed
Alun Pugh	General	<p>I welcome the publication of this document and support attempts to reduce light pollution in the AONB.</p> <p>The newish street lighting in my village of Gellifor - on the edge of the AONB - installed by DCC is unnecessarily bright and harsh.</p>	<p>Support noted</p> <p>The lights in Gellifor were installed in 2020 and are 3000K. These particular lights can be dimmed further if design parameters allow. Any older LED lights will be changed when due but the design life is 25 years.</p>	No changes proposed
Bourne Leisure Ltd	General/ Paras 1.8, 5.2, 5.9, 5.12, 5.17, 5.29 and 5.30	<p>Bourne Leisure operate Presthaven Holiday Park between Gronant and Talacre, which is approximately 800m outside the AONB.</p> <p>We endorse the overall objective of reducing light pollution and maintaining dark skies within the AONB.</p> <p>Notwithstanding this we have a number of comments on the SPG that are based around the following topic areas:</p> <ul style="list-style-type: none"> • Ensuring that the baseline is fully understood for any assessment; • Being clear that the AONB and its setting is not homogenous; 	<p>Support noted</p>	

	<ul style="list-style-type: none"> • The need to avoid onerous requirements with a planning application where these can be dealt with by condition; • Recognising the limitations with technical advancements to be the solution to internal light spill; and, • Concern over the timing of bringing forward this document in the context of stalled Local Deposit Plans. <p>Baseline</p> <p>The AONB is located approximately 800m from the southern boundary of Presthaven Holiday Park (at its closest point). The Holiday Park is part of a fairly continuous expanse of built up area along the North Wales coast. Due to the distance of Presthaven Holiday Park to the AONB and its wider urban context, the effect of new development in the coastal margin on dark skies will have negligible consequences unless there was a significant major development e.g. major road infrastructure (using high mast lighting or other far reaching light sources) or major developments e.g. sports grounds/logistics estates where flood lights might be on into the night. As such it is Bourne Leisure's view that only a very small number of new developments in this northern area outside the AONB are likely to impact on the Dark Skies in any determinable way. The emerging SPG should better recognise that the nature of the new proposals need to be assessed against the existing baseline observable at a local level at the time of the application and must not apply blanket requirement where the site and the development is unlikely to have a material impact upon the Dark Skies objectives.</p> <p>Timing of SPG</p> <p>The draft SPG has been prepared by the Clwydian Range and Dee Valley AONB in partnership with Denbighshire County Council, Flintshire County Council and Wrexham County Borough Council. The timing of the SPG is questionable based on the reliance of the draft SPG on emerging local development plan (LDP) plan policies. Denbighshire is only at Preferred Strategy and not Deposit stage while Flintshire and Wrexham are at Deposit stage. Further, all LDPs have stalled because of new requirements from the Welsh Government to assess the impact of the Covid-19 pandemic upon the emerging spatial strategies, policies and allocations. Most recently, a number of emerging LDPs are again stalled because of the need to consider the implications of new</p>	<p>Noted. Although outside the AONB Presthaven is visible in views from the higher ground of the AONB and could be considered to be within the setting of the protected landscape depending on the scale and type of development proposed. However, it is agreed that most small scale developments are unlikely to have a significant impact on the AONB, but larger developments involving new external lighting will be encouraged to follow the principles of dark sky friendly lighting design as set out in the SPG. Each application will be assessed on its merits.</p> <p>Table3: 'Key aspects of a lighting assessment' recognises that the existing baseline lighting conditions of a site are a relevant factor to consider</p> <p>Not accepted. Where you have more than one constituent local authority it is inevitable that there will be differing timelines in terms of LDP coverage and plan preparation. The Denbighshire LDP and Flintshire and Wrexham UDPs all contain relevant policies concerning the AONB. The Flintshire and Wrexham LDPs have progressed to Examination and also both contain relevant AONB policies. The SPG sets out the links to existing adopted policies and also any</p>	<p>No changes proposed</p>
--	--	--	----------------------------

	<p>European case law on phosphates where there is a river [Special Area of Conservation] SAC in them. In this context and to ensure that the appropriate weight can be given during the determination process, the emerging SPG must either reflect adopted policies or wait until the LDPs (upon which the document relies) are adopted.</p> <p>Policy and Evidence (Sections 1 and 2) It is important with any emerging policy documents that they are based on the most up to date evidence and policy. Paragraph 1.8 refers to an older version of Planning Policy Wales. This should be updated to refer to version 11. Figure 2 does not include a source and is low resolution so it is impossible for it to be useable. As a general point across the SPG the source of figures and data used in figures should be clear. The quality of the other figures should also be of a high enough resolution to be clearly legible to the reader.</p> <p>Lighting Assessment (Section 5) Table 3 of the document sets out 'Key Aspects of a Lighting Assessment'. The baseline is set out in parts within the table, Group 2 - 5. These factors and associated questions should be considered as a whole and not in discreet parts. In other words, the existing lighting environment of the site, survey of surrounding night environment, identification of critical viewpoints and determination of the obtrusive light limitations for lighting installations combined should form the baseline position for considering light impact of a development. At present these elements are set out individually under the sub-heading 'baseline conditions' in Table 3. However, it should be made explicit that these factors would be considered in the whole and not individually.</p> <p>Document requirements for planning application At paragraph 5.2, the draft SPG comments that there is a need to submit a lighting plan with any application within or on a site affecting the AONB. The importance of lighting assessments as part of the application in the AONB is understood. However, for sites outside the AONB where lighting is not a determining factor in for an application, it is highly unlikely there will be a</p>	<p>subsequent policies in emerging plans in para 1.12 and Appendix 2.</p> <p>Noted and agreed. Final SPG will be amended to reflect updated PPW.</p> <p>Figures 2 and 3 are for illustrative purposes only. However, the final SPG will include a link to the recent NRW Dark Skies and Light Pollution online map for Wales</p> <p>Comment on source of figures noted</p> <p>It is expected that all the aspects set out in Table 3, including baseline conditions, would be considered in a lighting assessment. However, this should be clarified for the avoidance of doubt.</p> <p>Para 5.2 states that it is only for those developments where the planning authority require a lighting plan that a full assessment will be required. This will be a judgement dependent on the scale and nature of the development</p>	<p>Amend Para 1.8 and footnote 2 to update PPW reference to '(Edition 11, February 2021)' Add new Para '2.14. For the most up to date information on light levels across Wales please refer to NRW's Dark Skies and Light Pollution in Wales online maps (see WalesLightMap)' Amend Figures 2 and 3 to add sources</p> <p>Amend Para 5.2 to read '...aim to address the key points all the aspects set out in Table 3.'</p> <p>Amend Para 5.2 to read 'For those developments where the planning authority require a lighting plan, the design and assessment should aim to address the key points all the aspects set out in Table 3. if the</p>
--	--	--	--

		<p>need for a lighting plan at the time of application. This can be secured by condition. The need for a lighting assessment and lighting plan to accompany an application must be made on a case by case basis and must not be applied as a blanket requirement. Without this, the requirement is disproportionate and not justified. We request removal of the requirement at Para 5.2 of the emerging SPG.</p> <p>Light pollution measurements Paragraph 5.9 explains how light pollution is measured in magnitude per square metre [SQM]. At Appendix 4, the SQM for a number of locations is tabulated. Gronant is identified as having a very dark sky. This seems inconsistent with statements elsewhere in the SPG such as where holiday parks are mentioned as a main source of light pollution (paragraph 2.13). It also does not seem to correlate with Figure 3 that shows high levels of ‘radiance’ around Gronant. We have not scrutinised each SQM for each location but it seems that these figures need to be adequately evidenced if they are to be relied upon. Appendix 4 should also include a map not just grid references as it does as present. This is to make the presentation of this data clear to the reader. The grid reference in isolation does not assist the reader in understanding the location. At paragraph 5.12 the SPG classifies all the AONB and its setting into E1 of Table 4 which is unreasonable. The SPG should allow for appropriate levels of SQM to be used as the baseline or target rather than a blanket 20 SQM average. As mentioned above it is not clear whether the data at Appendix 4 is accurate when read alongside inconsistencies in the document. The potential for and the impacts need to be</p>	<p>proposed and its likely impact. Most small scale developments are unlikely to be required to prepare a full lighting assessment and plan. It is agreed that this should be clarified in the SPG</p> <p>The SQM readings are not directly related to the planning guidance but are included to demonstrate that the AONB has good quality dark skies which are worthy of conserving, and to monitor the position over time. This is required by the IDA to secure formal recognition of the area as a Dark Sky Community. The Gronant survey point is actually at Coed Bell which is outside the village. More detailed and up to date survey information including maps will be made available on the AONB Website. The SPG is not related to or dependent on SQM data – it aims to promote better lighting design across the AONB in all areas. It recognises that better lighting design can have a positive impact on human health, biodiversity and the wider</p>	<p>lighting scheme requires planning permission, then there must be a lighting assessment. The Planning Authority will make a judgement on whether a full lighting assessment and plan is required depending on the scale and nature of the development and its likely impact on the night sky. A full assessment and plan is likely to require the services of a qualified lighting design engineer. Small scale developments with minimal lighting impact are unlikely to be required to prepare a full assessment and plan but should follow the basic principles of lighting assessment and dark sky friendly design. Pre-application discussions are useful’</p> <p>Add note to Appendix 4 to refer to the AONB website for the most up to date survey data and a map of the survey points. Update Appendix 4 to include 2021 survey results.</p>
--	--	--	--	--

		<p>assessed compared with the baseline, considered at a local level, at the time of the application.</p> <p>Viewpoints and the type of development Paragraph 5.17 is concerned with impact of lighting on 'key viewpoints'. It states: 'There are many key daytime viewpoints across and outside the AONB that serve both the daytime and night. Proposals should consider the impact on these viewpoints, particularly regarding the disruption of the continuity of the dark landscape. Large-scale developments are more likely to be outside the AONB. There is a need to consider their impact on dark skies and key viewpoints within the AONB.' As set out previously the types of development located outside of the AONB that are likely to impact on the AONB will be relatively limited. Some 'major' developments will have no impact whatsoever on the AONB and as such the emerging SPG should be clear on that not all major developments will have an impact. Similarly, the SPG makes no indication on what is considered to be a key viewpoint. This needs to be set out within the document.</p> <p>Technical Requirements Paragraph 5.29 seeks to keep glazing to a minimum and wherever possible states glazing should:</p> <ul style="list-style-type: none"> • not exceed 25% of the floor area (using Elemental Method Energy Efficiency as reference (building regulations); • avoid large single areas (>50% glazing on a single elevation is becoming 'large') of glazing such as floor to eaves glazing/cart shed openings or single elevations; and • not be on roofs without sufficient mitigation <p>Bourne Leisure endorses the flexibility incorporated into this paragraph meaning that such requirements are needed "wherever possible". However, the policy does not distinguish between larger buildings and small structures such as caravans. A 50% glazed elevation on a caravan would not have the same impact as a 50% glazed elevation on a two storey dwelling or large commercial building. The policy should be applied in a way that is proportionate, also recognising the standard designs of holiday homes and caravans. At paragraph 5.30 the use of technologies is endorsed. However, from experience the technologies are not as</p>	<p>environment even where current light pollution levels are relatively high.</p> <p>The SPG makes it clear that there is a need to consider potential impacts, rather than there being a blanket ban on major developments within or in the vicinity of the AONB. There are many key viewpoints and to list them all would make the document cluttered and less easy to use. Viewpoints are better dealt with on a case by case basis dependant on the location and scale of development proposed. Each application is considered on its merits.</p> <p>Noted</p>	
--	--	---	--	--

		<p>effective in real life examples as suggested. Notwithstanding this, it is correct to keep exploring and taking opportunities where these are available, affordable and effective. At paragraph 5.31 it states: 'Where floor to eaves glazing cannot be avoided, eaves should overhang the glazing sufficiently to block all upward spillage of light.' This request provides some flexibility in that it acknowledges that floor to eaves glazing may sometimes be incorporated but the emerging SPG should allow further flexibility for smaller structures as above. It should recognise requirements should be proportionate. The requirement for eaves to overhang should be "where possible". We would request this paragraph is amended accordingly.</p> <p>Conclusion Overall whilst the importance of protecting Dark Skies is recognised, there are concerns with the timing and detail of the draft SPG. Most importantly, not all proposals outside the AONB would have an impact on the AONB dark skies and this needs to be reflected in how the requirements are applied. It is clear that where applications are proposed in areas that are already experiencing high levels of lighting, the extensive requirements within this document will not be relevant.</p> <p><i>Bourne Leisure requests that the comments made in this letter are addressed as part of the preparation of the SPG and the AONB Authority and Councils re-consult on the revised SPG in due course, prior to its adoption.</i></p>	<p>Noted and agreed</p> <p>The planning authorities will consider all comments received but do not propose to re-consult on the amendments made to the SPG prior to adoption.</p>	<p>Amend Para 5.31 to read 'Where floor to eaves glazing cannot be avoided, eaves should <i>wherever possible</i> overhang the glazing sufficiently to block the upward spillage of light'</p>
Ruth and Jude Elliott	General	<p>Please do everything you can to stop existing light pollution and stop new sources. The skies are nearly dark but still not dark enough ... light from northern parts of Flintshire and Denbighshire in particular stop this being a truly dark sky area.</p> <p>It would be good if householders and farms stopped using really bright floodlights that beam outwards and upwards too.</p>	<p>Support noted Sky glow from surrounding built up areas is an issue in some parts of the AONB but sky quality measurements confirm that overall the AONB has some very good quality dark skies which are worth conserving. The SPG will encourage dark sky friendly lighting design</p>	<p>No changes proposed</p>
Hope Community Council	General	<p>The council support the above consultation, however, they do express concerns for safety at night of less lighting in areas of concern e.g low level lighting in small estates and curfews to dim lights.</p>	<p>Support noted Appropriate levels of lighting for legitimate health and safety reasons is permissible but the SPG seeks to encourage good dark sky friendly lighting design. The possibility of</p>	<p>No changes proposed</p>

			curfews and/or dimming of street lights is a matter for the highway lighting authority.	
Michelle Phillips	General	I've not read this, but rather than lighting I'd like my bin and recycling emptied each week instead? That would be perfect!	Not applicable	No changes proposed
Kerem Asfuroglu, Dark Source Lighting Design Studio	General/P age 22	<p>This is a really nice document. Very comprehensive and sensible. It's all beautifully explained.</p> <p>My only comment is for page 22 of the Planning for Dark Night Skies Doc. If that is just an advice as the title suggests, then it should be fine as long as it's not a requirement.</p> <p>"Shield lights above 500 lumens." (Makes perfect sense). However, "Use lights less than 1000 lumen" can be a bit problematic. 1000 lumens is not a huge amount of light whether it's for interior and exterior applications. To give you an idea, the Heper bollard we are using can produce up to 1000 lumens and it's an incredibly efficient luminaire for the purpose we are using it for. A basic LED light bulb would produce up to 800 lumens. My worry is that this statement might result with higher quantity of fixtures with smaller lumen package due to the lumen output constraint. You would ideally want the minimum amount of light fittings to be utilised. You don't want more lights to be produced and consumed due to a low quota.</p>	<p>Support noted</p> <p>The SPG recommends that an output of less than 1000 lumens (equivalent to an old style 75-100w incandescent bulb) for each luminaire will be appropriate for most external domestic installations. However, each proposal will be considered on its merits and a balance struck between the most appropriate lumen output and the number of luminaires.</p>	No changes proposed
John Rowlands	General/ Glossary, Paras 5.8, 5.9, 5.26, 5.28, Tables 4 and 5 and Appendix 4	<p>I submit a response as a private individual and long-term campaigner, informally allied to the Campaign/Commission for Dark Skies. I am a Fellow of the Royal Astronomical Society and an astronomy author. I have undertaken formal, funded night sky quality surveys for local authorities and others, and written a standard method based on SQM use.</p> <p>(1) Your consultation document clearly attempts to deal with an issue of great importance, and your efforts are to be welcomed and congratulated. I hope my comments and observations are received in the constructive manner intended. Where I am critical, I hope to explain the reason for this.</p> <p>(2) Whilst I appreciate that you act for and have powers within the AONB designation, light pollution, as you intimate in several places, does not respect boundaries created for bureaucratic purposes; it spills in via scattering from adjoining</p>	<p>Support noted</p> <p>Noted. It is hoped that action in the AONB will act as an exemplar for surrounding areas and the SPG will raise awareness of the need for of dark sky friendly lighting design. In</p>	

	<p>areas which, in the Clwydian Hills AONB, includes a large surrounding area of high population and lighting density. The AONB must therefore be careful not to see this exercise as creating a 'dark sky ghetto', where stricter controls within the AONB are seen as the end of the project, and a sole measure of success. It is vital that you expand links with the adjoining authority areas to try and reduce light pollution in those areas such that spillage from outside is lessened. This will take a long time, and the AONB should recognise this and create fora to move things forward.</p> <p>(3) I note that the consultation document (at Glossary and 5.8, 5.9) rather misleadingly assigns the meaning 'Sky Quality Measurement' to the abbreviation 'SQM'. 'SQM', to the astronomy community, indicates the 'Sky Quality Meter' made by Unihedron. Clearly, sky quality measurements can be made by a variety of different methods.</p> <p>(4) You make the following, I consider incorrect assertion at 5.9:</p> <p>'A reading of 21.00 would indicate a very dark site'. Firstly, it is necessary to consider how this reading is taken. I have criticised - and IDA has accepted - that the zenith measurement promoted by them is flawed, failing as it does to take into account surrounding light 'domes', nearer the horizon. For an accurate sky brightness assessment that reflects the true impact, it is necessary to take readings from the zenith and integrate this with readings from, for example, 45 degrees' elevation in each of the cardinal compass directions.</p> <p>Secondly, the SQM is known, and the published sensor data confirms, to be of reduced sensitivity to blue light. Where baseline surveys have been established within even the past couple of years, the rapid change from sodium to LED lights means light pollution has become markedly bluer in nature, and so can produce (and is seen to produce in my long-term surveys), an apparent, but not real reduction in light pollution.</p> <p>Finally, a reading of 21.00 MPSAS is 'quite dark', but not 'very dark'. On Anglesey, which is readily seen to suffer from moderate light pollution in even the least lit areas, a reading of 21.1 to 21.2 is normal under all but easterly air mass flows,</p>	<p>addition, the SPG refers to the need to protect the setting of the AONB, which will therefore include some lighting developments proposed in adjoining areas. The local planning authorities also have council wide planning policies in place which seek to minimise light pollution (see SPG Appendix 2)</p> <p>Noted and agreed</p> <p>Noted. In UK terms a sky quality reading of 21.00 is generally accepted as a dark site. The SPG generally adopts IDA guidance on such matters. The IDA accepts that a reading of 21.5 would meet the stringent definition of a Dark Sky Reserve.</p> <p>Noted. The SPG recommends that external lighting should have a colour temperature of less than 3000 kelvin which will reduce the more damaging blue-white component of light.</p>	<p>Amend Glossary, Appendix 3, Appendix 4 and paragraphs 5.8 and 5.9 to read 'sky quality measurement' in place of 'SQM'</p> <p>Amend para 5.9 to 'A reading of 21.00 would indicate a dark site'.</p>
--	--	--	--

		<p>and 21.4 to 21.5 MPSAS is typically experienced in the late winter period under low humidity Arctic airflows. IDA itself, for reference, uses 21.5 MPSAS as the 'core' dark level.</p> <p>Similarly, your assertion that 16 MPSAS represents a light polluted sky is not correct insofar as a typical reading taken at the edge of Holyhead, Anglesey's largest town, for example, before the widespread introduction of full cut-off LED lights, yielded ca. 18 MPSAS. Please note that the MPSAS scale is not linear, but logarithmic.</p> <p>(5) Reading through your Tables 4 and 5, I suspect that US-based definitions have crept in here. Whilst you can defend this by saying these are the definitions issued, I identified clear problems arising from scales, assumptions and other matters that were issued based on the American experience of the built environment and the concept of open spaces. Both are very different to the UK experience, and lead to very significant problems with, for example, the use of the 'Bortle' scale, which is in any event criticised in peer-reviewed papers, with considerable justification, for its claims surrounding lowest-detectable apparent magnitudes by the human eye.</p> <p>(6) Your comments at 5.26, and more generally, concerning street lights, must also take into account what has been termed 'the great untold story of light pollution' - that street lights deployed en-masse across the country provide the balancing load for continuous-output power generation, such as nuclear, which cannot be readily regulated, during low use periods of the night. This means that there will be resistance to a large reduction in street lighting, should it be pursued. The rise of the electric vehicle as a potential balancing load could, however, change this.</p> <p>(7) I find the assertion concerning spillage from internal lighting at 5.28 unconvincing, and not of the impact suggested.</p> <p>(8) There are references in places to the use of the Planning system for approvals and enforcement. A priority for the</p>	<p>Noted. In the absence of other recognised guidance the SPG has adopted IDA guidelines. It is acknowledged this is based on US precedent but the IDA is generally recognised internationally as setting the core principles for best practice.</p> <p>This issue is beyond the scope of the SPG</p> <p>The SPG is not only concerned with conserving the night sky for astronomical purposes but also seeks to minimise the discordant visual impact of excessive light on dark landscapes.</p> <p>The SPG will raise the profile of light pollution in the consideration of all</p>	
--	--	---	--	--

		<p>AONB will be to educate planning staff about light pollution - they are often unaware of it - and to continue to keep light pollution within their awareness. It is my experience that light pollution is often seen as unimportant relative to other matters, and extremely rarely the subject of any enforcement, even when there is a breach of an approval condition. Authorities do not have resources now to engage in any but the most egregious breaches.</p> <p>(9) There are some useful graphics to aid understanding and compliance. It is disappointing that, especially in a largely rural area such as the AONB, there is no reference to farms. Farms are continually intensifying, add ever-larger structures and associated external lighting, which often turn otherwise dark areas into places blighted by industrial-type, direct light pollution/glare. Farmers should be assisted and encouraged to consider lighting carefully, but there is often reluctance based on fear of union backlash exhibited by local authorities. This must change.</p> <p>(10) Finally, in relation to the "averaged SQM" readings you present at Appendix 4, it is disappointing not to see individual data presented, together with the resulting average (which is not stated as to type - arithmetic or median), such that any problems with the data, such as poor repeat values or lack of adequate number of readings, are rendered evident. It is also not given as to what the weather and, more particularly, the wind direction was during each reading. There are very large changes in sky brightness that occur when the wind shifts to more easterly flows, as a result of imported particulate pollution from that direction.</p>	<p>planning applications. When adopted the SPG will be a material planning consideration in the determination of planning applications and appeals. It will encourage developers and decision takers to consider lighting matters at the outset and result in better lighting outcomes. However, it must be acknowledged that lighting conditions can only be imposed where developments require planning permission</p> <p>Noted and agreed. The absence of a farm graphic to illustrate good and bad lighting practice is an omission.</p> <p>Noted. Consideration will be given to enhancing the presentation of sky quality data for future surveys.</p>	<p>Add farm graphic and commentary to the section on 'Advice by type of development' (pages 22/23)</p>
Steve Whipp	General	<p>I fully support the initiative to create dark skies and the approach set out in the consultation document. Whilst we can ensure that all planning proposals understand and are sympathetic with the need to address lighting there remains an issue with building that have inappropriate arrangements. I know of several houses and pubs that have unnecessarily high levels of lighting and I would suggest that the consultation should include proposals for encouraging properties with</p>	<p>Support noted Whilst the SPG will relate to new development which is subject to planning permission it is also intended to provide advice and guidance to all existing property owners on good practice in lighting design. The AONB's dark sky initiative includes</p>	<p>No changes proposed</p>

		<p>inappropriate lighting to recognise the need and to conform with best practice. There is no point making sure new builds comply if other properties go on oblivious of the need. It could also be relevant to have a communications campaign to make people aware.</p>	<p>community and business awareness raising projects and events to raise the profile of the issues involved and encourage dark sky friendly lighting design in general. A promotional leaflet and campaign is also planned to raise awareness of the issue.</p>	
Llangollen Town Council	General	<p>The general consensus was that the aim of the guidance to reduce light pollution was welcomed. In particular, it was noted that reduction of light emissions significantly improves the biodiversity of local areas, which was wholly compatible with the Town Councils declaration of a climate and ecological emergency. Individual Councillors raised some concerns over the introduction of such a detailed scheme as outlined in the comments below: -</p> <p>a) The comment “Some lighting installations will require planning permission” this statement is too broad and could include anything.</p> <p>b) Throughout the document there is reference to a qualified lighting design engineer being involved this could result in additional costs. Members felt that this was unnecessary in certain instances, such as general domestic applications, as an appropriate guide could demonstrate compliance for commonplace situations. Other options could be to offer approved design software or financial grants to help with the costs.</p>	<p>Support noted.</p> <p>It is important to recognise that not all lighting installations require planning permission. Further advice can be obtained by contacting the local planning authority.</p> <p>The summary assessment and design checklist at para 5.37 gives a guide to the main issues to consider for different types and scale of development. The need for a lighting professional to be involved will be proportionate to the development proposed. It is likely that only larger projects will require a full lighting assessment and plan which may involve a lighting design engineer, but it is agreed this should be clarified in the SPG.</p>	<p>Amend Para 5.2 to read ‘For those developments where the planning authority require a lighting plan, the design and assessment should aim to address the key points all the aspects set out in Table 3. If the lighting scheme requires planning permission, then there must be a lighting assessment. The Planning Authority will make a judgement on whether a full lighting assessment and plan is required depending on the scale and nature of the development and its likely impact on the night sky. A full assessment and plan is likely to require the services of a qualified lighting design engineer. Small scale developments with minimal lighting impact are unlikely to be required to prepare a full assessment and plan but should</p>

		<p>c) In respect to limitations to designs, if this had been in place during the construction of town square, by the Town Council, the illumination of the trees and memorial structures on the square would have not been allowed. Members believe the guidance should reflect the need to illuminate appropriate structure in certain locations.</p> <p>d) Restrictions to luminaires, what are the implications if a specialised light fitting is needed for a certain application that is not on the approved list? This needs to be considered.</p> <p>e) Members thought there was a lack of specific guidance in the note for the farming community. Farmer and Smallholders, work at all hours and in all weather in very isolated locations where appropriate lighting is required for health and safety purposes.</p> <p>Having given due consideration to the guidance note the Town Council resolved to support the supplementary planning guidance note, given its important in assisting biodiversity and potential benefits to the local economy through attracting more visitors, but in conjunction with the caveats detailed above.</p>	<p>The SPG does not seek to ban all lighting but to ensure that it is proportionate and designed to dark sky standards. Each application will be considered on its merits</p> <p>Note that Appendix 5 is a list of possible lighting suppliers and is not an 'approved list'. The diagram is intended to illustrate some examples of acceptable and unacceptable luminaires, but there may be other dark sky friendly products and designs that would also be acceptable.</p> <p>Noted and agreed. The absence of a farm graphic to illustrate good and bad lighting practice is an omission.</p> <p>Support noted</p>	<p>follow the basic principles of lighting assessment and dark sky friendly design. Pre-application discussions are useful'</p> <p>Add farm graphic and commentary to the section on 'Advice by type of development' (pages 22/23)</p>
Elizabeth Newns	General	<p>I am a resident of Llanferres Village, Denbighshire, I live on the A494. I have lived here for 3 years, moving from suburban Chester. Where I actually had a better view of the night sky than I do here.</p> <p>I am in total agreement that we should have dark nights, but appreciate the need for safety in the village is very important. I have 2 lamp posts that directly affecting my property. Both lighting the junction of Rectory Road.</p>	<p>Support noted</p> <p>Lighting on the A494 is the responsibility of the North and Mid Wales Trunk Road Agency (NMWTRA).</p>	No changes proposed

		<p>Last week we had 2 dark nights it was beautiful to be able to appreciate our sky.</p> <p>As a Village we do suffer from speeding traffic 24hours a day, and with the 2 dark nights we had speeding traffic did not diminish during the night, but was no worse than usual.</p> <p>I do feel though that in winter safety of residents may become an issue with longer periods of darkness.</p> <p>From March to October though I feel it would be beneficial to the Village. We have a public house, visitors to this Inn, would greatly appreciate a pint and a dark sky to view, and so, may stay longer, therefore benefiting our local economy.</p> <p>As a tourist area, I feel the local economy as a whole would benefit from the tourists coming to stay and view our beautiful sky.</p>		
Nannerch Community Council	General	<p>Councillors would like to confirm their full support towards the Supplementary Planning Guidance for lighting in the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty.</p> <p>The Council has recently been asking the local authority to take the AONB's aspirations of the Dark Skies Designation into account when considering any planning applications.</p>	Support noted	No changes proposed
Gordon Thompson	Paragraph 5.23	<p>Movement sensors are not an answer if there are objects that move within their range during anything other than a light breeze - such as plants, tree branches and washing on lines. This can cause the light to flash on and off incessantly and would be worse than it remaining on for extended periods of time.</p>	Noted and agreed. Paragraph 5.23 refers to proximity and timed circuits as part of a suite of lighting mitigation measures	Amend para 5.23 to add 'Give careful consideration to the positioning and alignment of sensors to minimise erroneous triggering of lights.'
NATS (National Air Traffic Services)	General	No comments.	Noted	No changes proposed
Paul Herbert, Enforcement Officer, Wrexham CBC	General	<p>Concerns re excessive light pollution, particularly from the Kronospan factory (which operates 24 hours) illuminating their plume and general site, in the Chirk area. The company certainly doesn't seem to be using the best practicable means to reduce artificial orange light from spilling into the night sky.</p> <p>This is a major cause of my annoyance for anyone in the vicinity wishing to view the stars. I note that street lighting in Chirk, provided by the Council, is continually improved and new LED lighting is angled down to reduce sky glare (and save energy). I'd much appreciate if you could liaise with Natural Resources Wales and the Pollution Officer currently</p>	<p>Support noted.</p> <p>The AONB recognises the need to engage with local businesses to encourage better lighting design and is open to working with Kronospan and others to help conserve the AONB's dark sky.</p>	No changes proposed

		responsible for Kronospan at Wrexham CBC to work with the company to develop a plan of action to address this issue.		
Warren Davies	General	<p>I am writing to express agreement with the AONB Planning for Dark Skies SPG.</p> <p>I believe it will lead to greater awareness of light pollution on insects and wildlife amongst businesses, service providers and the population generally. It will also likely lead to reduced energy use within the AONB area, with reduced CO2 emissions as a positive consequence.</p> <p>It would be excellent if public sector buildings could take this guidance and apply it in retrospect to improve their light pollution performance. In locations such as Llangollen / Dee Valley this would have a significant impact and show that the local authority was willing to lead by example.</p>	<p>Support noted</p> <p>The AONB's dark sky initiative includes measures to replace non-compliant lighting with dark sky friendly designs on public buildings. For example, work to replace external lighting at Loggerheads Country Park has recently been completed as an exemplar project. As existing lighting requires replacement or upgrading it is hoped that this approach will be extended to other public buildings and sites in and around the AONB. For example, the AONB is currently working on a dark sky friendly lighting plan for Plas Newydd in Llangollen.</p>	No changes proposed
George Wallace	General	In response to the request for comments on the Dark Skies initiative, the greatest cause of light pollution at my home is street lights.	<p>Noted.</p> <p>The street lighting authorities are progressively replacing existing street lights with full cut off LED units which have less impact on the night sky. DCC have also been installing 3000K lights for the last 4 years. Lights will be replaced when required with 2700K units.</p>	No changes proposed
The Coal Authority	General	No comments	Noted	No changes proposed
Welsh Government, Department for Economy and Infrastructure	General	<p>All new Welsh Government trunk road highway lighting is designed to conform with the Design Manual for Roads and Bridges (DMRB) TA 501 Road Lighting appraisal and TD 501 Road Lighting design which incorporates the requirements of BS5489 - Code of practice for the design of road lighting, which outlines the criteria for Dark Skies lighting.</p> <p>When reviewing and designing trunk road in the AONB/Dark Skies areas, the designers should incorporate the Dark Skies guidance and other appropriate documents within the design process, whilst ensuring design meet the DMRB criteria. This can be achieved through the use of modern technology. In the case of the existing road lighting, every effort will be made to upgrade existing street lighting (in to the Dark Skies area) where possible.</p>	Noted	No changes proposed

		When considering the Dark Skies requirements our Agents are aware and instructed to consult with all interested parties including the Dark Skies organisations during the design and appraisal process	The AONB would welcome consultation on new or replacement trunk road lighting schemes during the design and appraisal process.	
Received via Consultation Portal	General	As one who spends a lot of time walking and running in the Clwydians. I fully support the proposal but wonder how effective such a scheme might be with reasonable large built-up areas such as Mold and especially Deeside being relatively close.	Support noted Sky glow from surrounding built up areas is an issue in some parts of the AONB but sky quality measurements confirm that overall the AONB has some very good quality dark skies which are worth conserving. It is hoped that action in the AONB will act as an exemplar for surrounding areas and the SPG will raise awareness of the need for dark sky friendly lighting design. In addition, the SPG refers to the need to protect the setting of the AONB, which will therefore include some lighting developments proposed in adjoining areas	No changes proposed
Received via Consultation Portal	General	I am fully in favour of the Dark Skies SPG - unnecessary lighting in the AONB should be controlled and having advice available will be useful for those considering any development or light installation. An informed choice can then be made which does not impact on neighbours or visitors to the area. It will also benefit the wildlife and make the night sky more visible.	Support noted	No changes proposed
Received via Consultation Portal	General	I wholeheartedly support the Dark Skies proposal. As a graduate in Astronomy and keen observer of the night sky, unaided and through a telescope, I know good seeing conditions are vital in encouraging people to look up and question our understanding of the universe and the laws governing it, and to recognize our place in it. Growing up in my current address from the age of 7 I have been privileged to experience the quality of seeing that we have here, just a few hundred meters outside the AONB between Llanbedr and Ruthin. Light pollution has become more of an issue with time, especially in the last few years with new development such as the new all-weather pitch at Brynhyfryd School. I would like to see light pollution reduced and would certainly not want to see any increase in light pollution.	Support noted	No changes proposed

Received via Consultation Portal	General	I'm not sure this will work because of all the lights from major towns and cities around the narrow strip being the AONB this will limit business and new developments	Noted Sky glow from surrounding built up areas is an issue in some parts of the AONB but sky quality measurements confirm that overall the AONB has some very good quality dark skies which are worth conserving. The SPG is not intended to limit business and development but to ensure that any external lighting is proportionate and designed and specified to conserve the AONB's dark sky and nocturnal wildlife.	No changes proposed
Received via Consultation Portal	General	In favour	Support noted	No changes proposed
Received via Consultation Portal	General	It's a very good idea. The night skies are wondrous, but even in the forests on Moel Famau are spoilt by the glow from Mold and from Ruthin	Support noted Sky glow from surrounding built up areas is an issue in some parts of the AONB but sky quality measurements confirm that overall the AONB has some very good quality dark skies which are worth conserving	No changes proposed
Charlie Burton	General	I've lived in this area all my life (getting on for 60 years) and have seen the increase in light nuisance from glare and dazzle. I also notice how the night time skies are no longer dark like they used to be because of increased light pollution. I fully support measures and enforcement that could reduce light pollution and light nuisance in the Clwydian Range, Dee Valley (and Berwyn hills).	Support noted	No changes proposed