



Northumberland
International
Dark Sky Park



Seeing the light

Duncan Wise

Visitor Development & Tourism Officer (Dark Sky Lead) Northumberland National Park Authority



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Overview:

- Why and how we became a Dark Sky Park
- What we have done since to develop dark sky tourism in Northumberland
- Why and how we can conserve our dark skies
- Case Studies
- Top Tips



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Moffat
Dark Sky Community
2016

Galloway Forest
Dark Sky Park
2009



Solway Coast
National
Landscape



Lake District
National Park



KIELDER
WATER & FOREST PARK



North Pennines
National
Landscape



Northumberland
National Park



Northumberland
Coast
National
Landscape





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Why are dark skies so special?



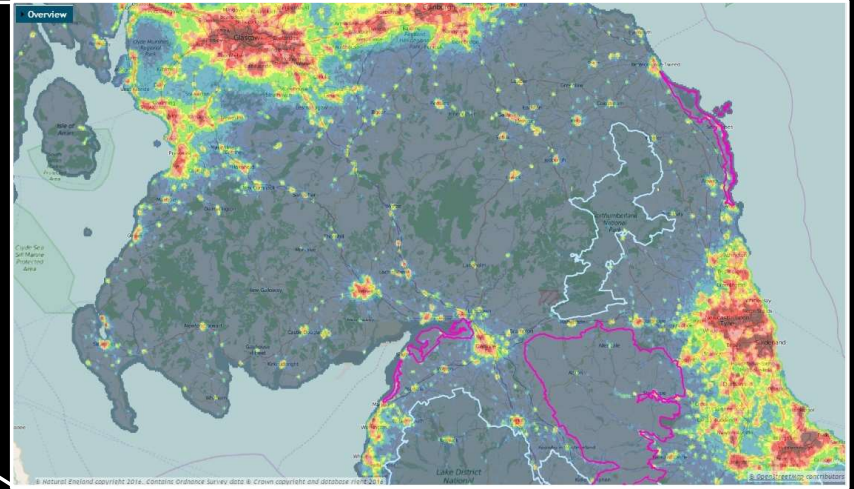
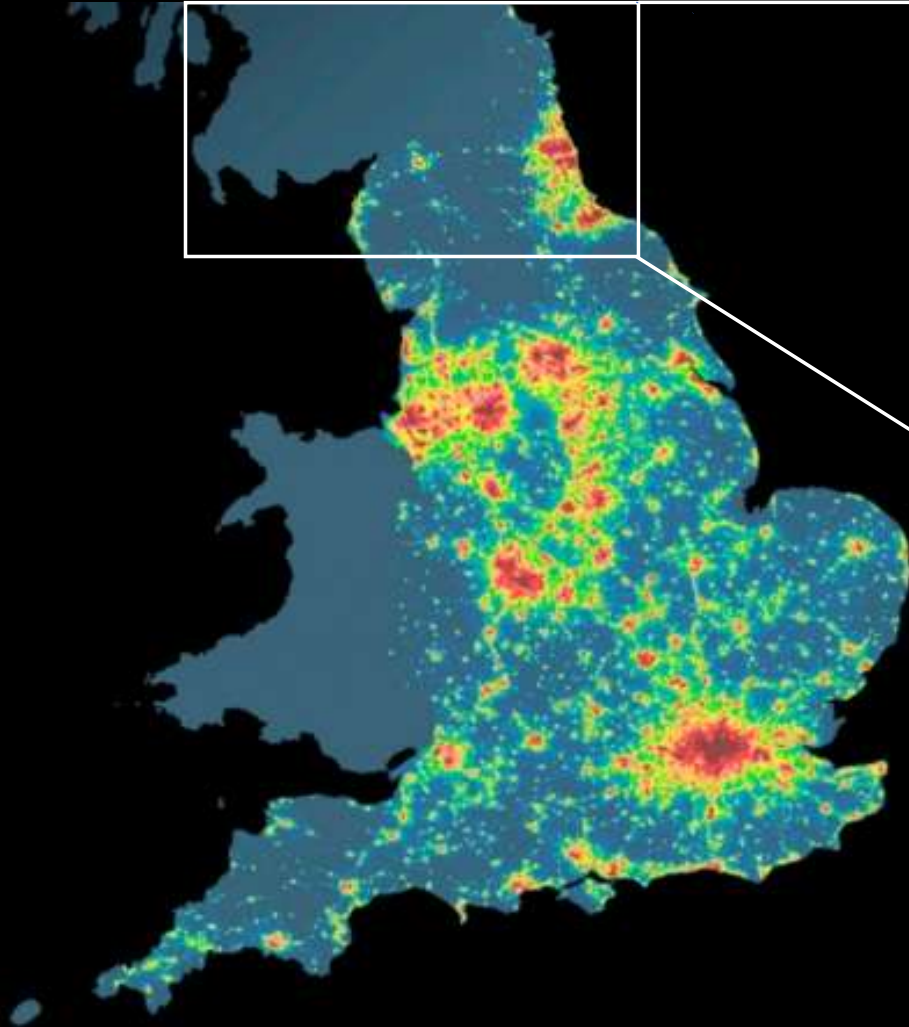
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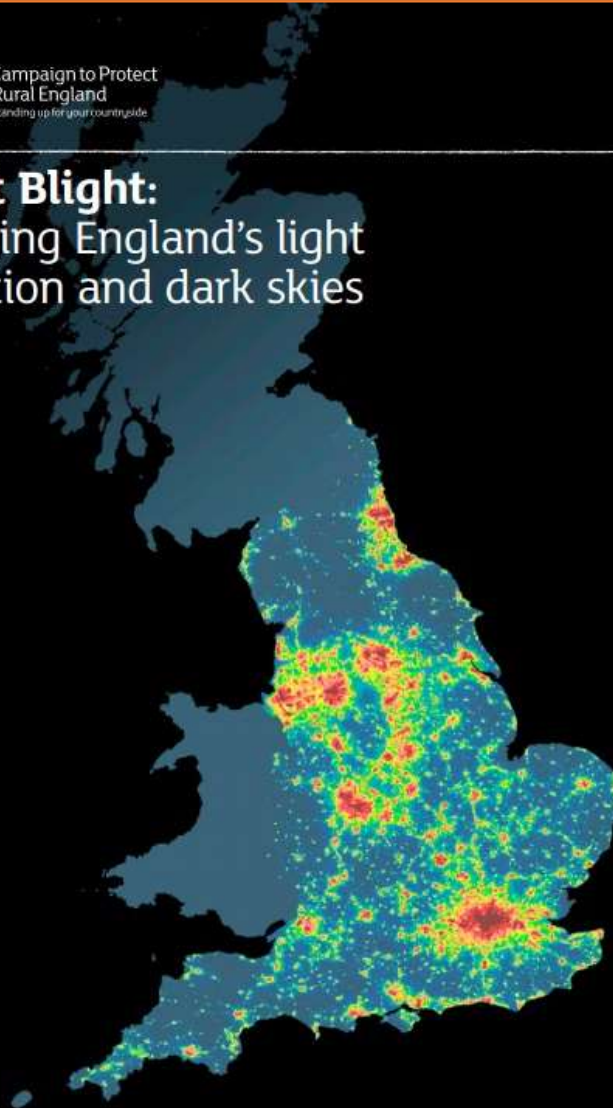




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**CP
RE** Campaign to Protect
Rural England
Standing up for your countryside

Night Blight: Mapping England's light pollution and dark skies



“The most accurate
picture of how much
light is spilling up into
Britain's night sky”

Northumberland comes
out top with 72% of its
skies in the darkest
category (2016)



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Wild Photography



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In the beginning....



© Richard Darn



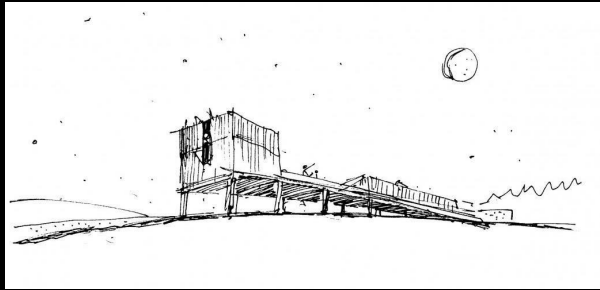
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Local astronomers were the first to see the light

- 1998 - First 'Star Party' by Forestry Commission at Kielder Castle (50 people)
- Early 2000s - Newcastle and Sunderland Astronomical Societies continue with Star Parties in Kielder Forest
- 2006 – Kielder Arts & Architecture programme commission design and build of the Kielder Observatory (opened in 2008)
- Annual 'Star Camps' continue to present day

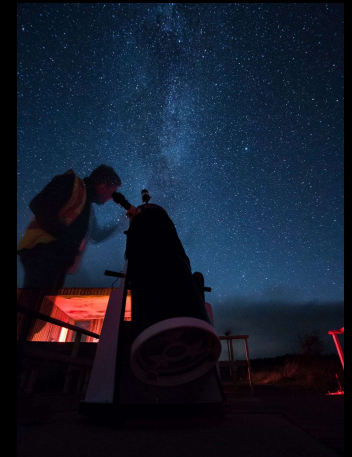


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Sketch design of Kielder Observatory
by Charles Barclay Architects

650+ events a year!





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Then we saw it too...

- 2011 - Northumberland National Park Authority and Newcastle Astronomy Association run their first stargazing events on Hadrian's Wall.
- 2011 – A 'Dark Sky Steering Group' (Northumberland National Park, Forestry England, Kielder Observatory, Kielder Water & Forest Park Development Trust, Northumberland County Council and Northumberland Tourism) established to work together on a joint application to secure dark sky place designation.
- 9th December 2013 - Northumberland International Dark Sky Park is designated.

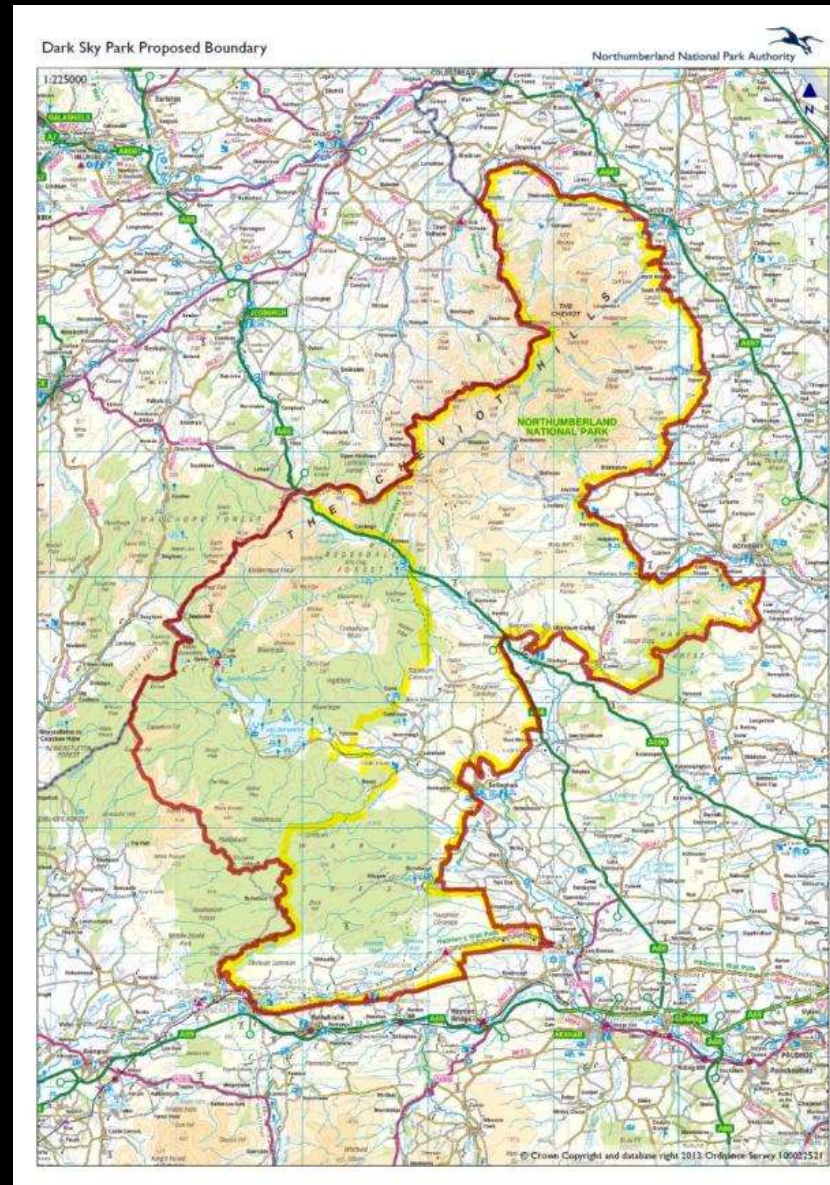


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DarkSky
INTERNATIONAL

- 1st IDSP in England
- 1500 sqm2
- <2200 population





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Deep Impact!

- International media coverage generates excess of £1 million publicity
- Increasing surge in popularity for Kielder Observatory events
- Other protected landscapes in Northumberland show interest in their dark skies and run events (North Pennines and Northumberland Coast Areas of Outstanding Natural Beauty)
- Visit Northumberland develops new Winter marketing campaigns around the dark skies offer



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More star attractions!

Battlesteads Hotel & Observatory



<https://www.battlesteads.com/observatory>

The Stonehaugh Observatory



<http://www.stonehaugh-enterprises.co.uk/>

Twice Brewed Inn & Observatory



<https://www.twicebrewedinn.co.uk/stargazing>

The Sill: National Landscape Discovery Centre Hadrian's Wall





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© A McKenzie

Great Places to See Stars

There are lots of great places to enjoy the night sky in the Northumberland International Dark Sky Park and North Pennines Area of Outstanding Natural Beauty. They are easy to find. Some of them have star maps in place to help you find key stars and constellations. Some have 24-hour toilets and there are places to eat and stay close to most of them. The sky you see from each place is the same, but each one is different.

To see dark skies through big telescopes visit Kielder Observatory. Nestling on a remote hillside, this award-winning building is the ideal place to observe our universe.

- | | |
|--|--|
| 1 Kielder Observatory
NE48 1EJ | 11 Walloway
CA8 7JD / CA8 7HZ |
| 2 Kielder Castle
NE48 1ER | 12 Ingram & Bulby's Wood
NE66 4LT |
| 3 Kielder Camp Site
NE48 1EJ | 13 Alhvinton Car Park
NE65 7BQ |
| 4 Tower Knowe
NE48 1BX | 14 Tarset Village Hall
NE48 1NT |
| 5 Et Kirk Viewpoint
Follow the signs at Kielder Water | 15 Elsdon Village Green
NE19 1AF |
| 6 Hawdope Car Park
Follow the signs at Kielder Water | 16 Falstone Village Hall
NE48 1AA |
| 7 Stonehaugh Stargazing Pavilion
NE48 3DZ | 17 Kirknewton Village Hall
NE71 6XF |
| 8 Once Brewed, National Park Centre
NE47 7AN | 18 Byrness
NE19 1TT |
| 9 Cawfields Picnic Site
NE48 9NN | 19 Rochester
NE19 1TA |

Some of these places have been designated as 'Dark Sky Discovery Sites' because they are especially dark.

Please note: When using sat nav at Kielder Water - unless you activate 'no toll roads' you may be directed via the Kielder Forest Drive which is an un surfaced road.





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1. Star Makers programme

- Led by astronomer, Robert Ince
- Amateur/Hobby astronomers recruited and trained in astronomy, interpretive technique, and event planning – how to create the ‘Wow!’ factor
- 14 new Star Makers completed the process, and many still continue to run their own dark sky events today



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2. Star Tips for Profit

- Series of training workshops for tourism businesses and accommodation providers in Northumberland
 - An introduction to dark skies, why you need to conserve them, how to cater for stargazers, how to market your business as a dark sky destination, choosing the right equipment, with an opportunity to stargaze
 - Attendees received 12-monthly blogs of astronomical events to use in their marketing afterwards
 - 100 businesses attended the programme (with 99% satisfaction score)



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Dark Sky
Friendly



Dark Sky
Stay & Gaze

Dark Sky Friendly and Stay & Gaze accreditation scheme developed by the Northumberland Dark Sky Steering Group with Visit Northumberland, to help visitors choose accommodation providers, who can also provide a dark sky experience.



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Dark Sky
Friendly

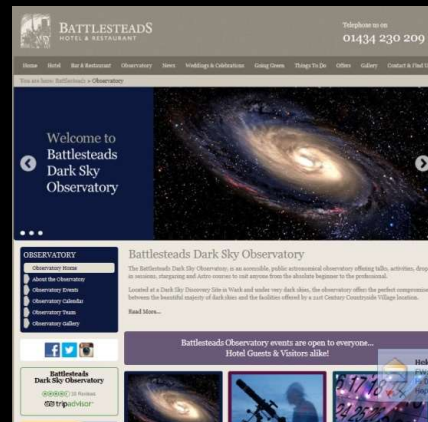
- Reduce light pollution on or near the property
- Accept late returns from star-gazing events or activities
- Consider requests for late check out or breakfasts
- Promote courtesy for other guests upon late return
- Provide a check-list of what to bring to enjoy our skies
- Provide information on how to enjoy our skies
- Promote other star gazing activities and events in Northumberland



- Provide facilities for refreshments – on return or as packed meals
- Give advice and tips (e.g. paint normal torches with red nail varnish)
- Attend a ‘Star Tips for Profit’ astrotourism workshop or other training
- Provide equipment that guests can use to view the stars – binoculars, red torches, telescopes, etc.



- Implement all actions for ‘Dark Sky Friendly’, but you should also:
- Provide a designated viewing area on-site with appropriate outside lighting which should be minimal but still ensure the safety of guests.
- Ensure views aren’t obscured by indoor or other lighting
- Provide equipment that guests can use to view the stars e.g. binoculars, red torches, telescopes etc.



"Had a fantastic holiday in this beautiful comfortable cottage. Must visit – NT Craggside. Craster (Jolly Fisherman food excellent). Drive up the Coquet Valley for stunning views across to Scotland. This has been a fantastic holiday for 'stargazing'. Thank you Sue for making our holiday such a huge success. Joan, Rodger, Margaret and Les, Sheffield



"What a wonderful time we have had in your cosy cottage. All the extra touches made it very special and added to our enjoyment. Our one night stargazing was memorable and will stick with us forever! Thank you for your warm welcome! X" Nicky, Andy and Ann, Birmingham



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Smaller businesses benefitted



- **Glampods,**
www.glampodsnorthumberland.co.uk
- **Hesleyside Huts** – www.hesleysidehuts.co.uk
- **Lodges at Leaplish-**
www.kielderwaterside.com
- **Redesdale Arms** - www.redesdale-arms.co.uk



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RESEARCH INTO THE ECONOMIC IMPACT OF DARK SKY TOURISM



As one of England's most rural areas, Northumberland enjoys some of the darkest skies in the country. In December 2013 The International Dark-Sky Association (IDSA) awarded International Dark Sky Park status to the combined areas of Kielder Water & Forest Park and Northumberland National Park.

Research including telephone and online surveys of businesses within Northumberland was carried out during 2018 to establish the Impact of Dark Sky Tourism in Northumberland during 2017.



Over **£25million** economic benefit



supports **450** jobs

BUSINESS INVESTMENT

13% who had invested in their business in the last 10 years did so partly or solely due to dark skies

BUSINESS PERFORMANCE

15% reported an increase in business performance as a result of dark skies

KIELDER OBSERVATORY

estimated to bring over **£1m** of expenditure into the region



The increase in the visitors that we have in the winter means that we can keep the staff we have all year round

Northumberland Business Owner

Northumberland International Dark Sky Park Partners





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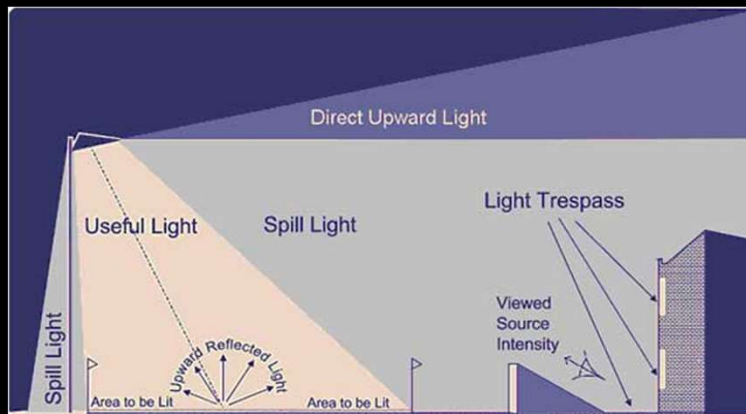
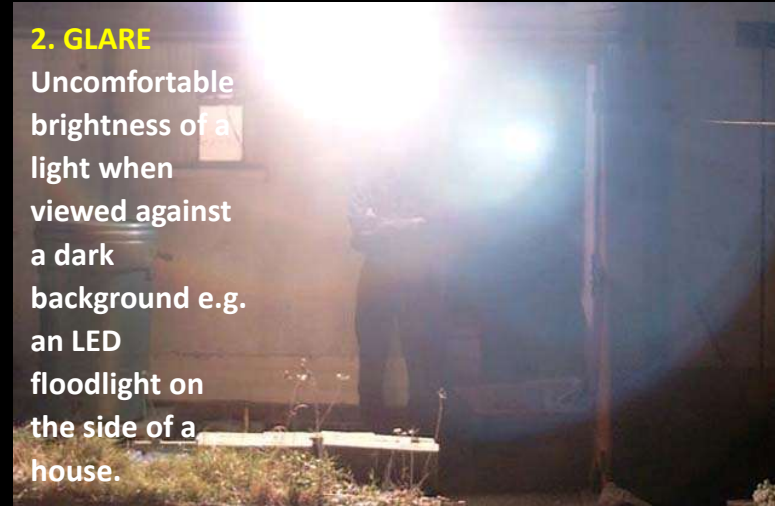
1. SKY GLOW

Brightening of the night sky from stray light sent upwards and scattered by moisture in the air.



2. GLARE

Uncomfortable brightness of a light when viewed against a dark background e.g. an LED floodlight on the side of a house.



3. LIGHT TRESPASS

Light spilling beyond property, including natural habitats and areas of high species interest.



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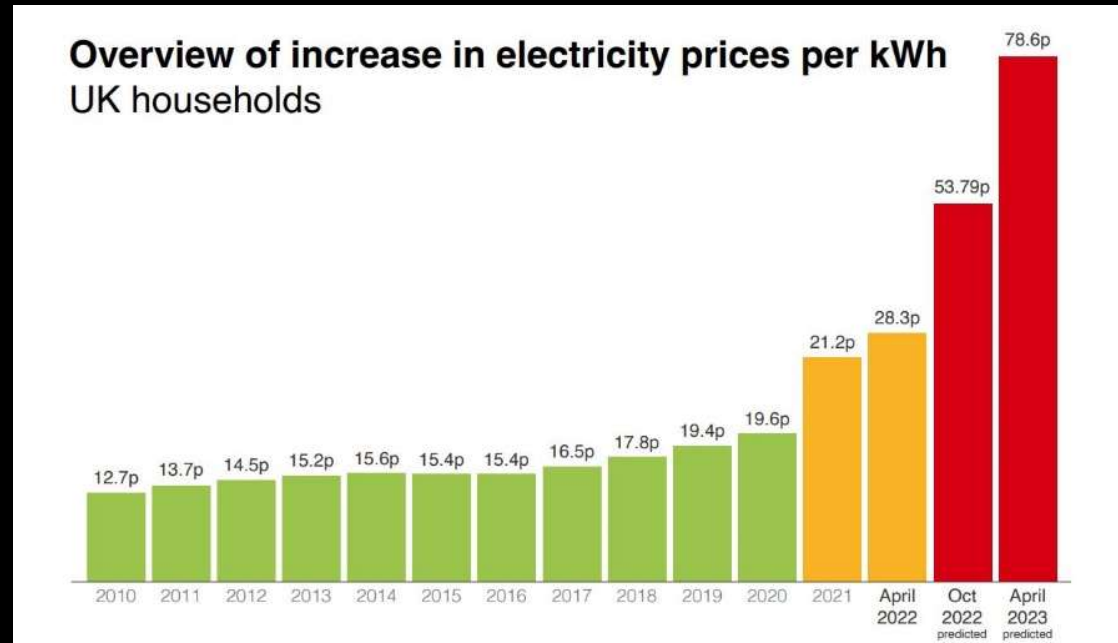


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£1 Billion wasted!

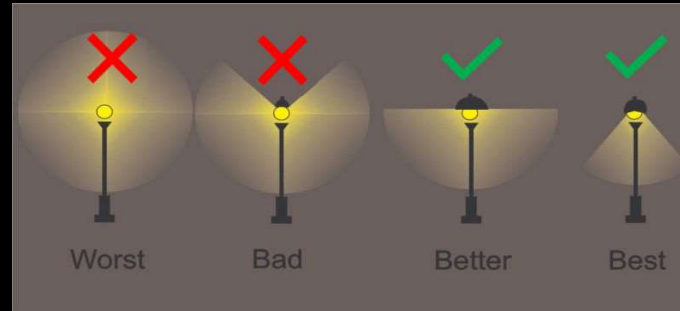


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Examples of Acceptable / Unacceptable Lighting Fixtures

Unacceptable / Discouraged Fixtures that produce glare and light trespass	Acceptable Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night
<p>Unshielded Floodlights or Poorly-shielded Floodlights</p>	<p>Full Cutoff Fixtures</p>
<p>Unshielded Wallpacks & Unshielded or Poorly-shielded Wall Mount Fixtures</p>	<p>Fully Shielded Wallpack & Wall Mount Fixtures</p>
<p>Drop-Lens & Sag-Lens Fixtures w/ exposed bulb / refractor lens</p>	<p>Fully Shielded Fixtures</p>
<p>Unshielded Streetlight</p>	<p>Full Cutoff Streetlight</p>
<p>Unshielded Bollards</p>	<p>Fully Shielded Barn Light</p>
<p>Unshielded Barn Light</p>	<p>Fully Shielded Walkway Bollards</p>
<p>Louvered 'Marine' style Fixtures</p>	<p>Fully Shielded Decorative Fixtures</p>
<p>Unshielded 'Period' Style Fixtures</p>	<p>Fully Shielded 'Period' Style Fixtures</p>
<p>Drop-Lens Canopy Fixtures</p>	<p>Flush Mounted or Side Shielded Under Canopy Fixtures</p>
<p>Unshielded PAR Floodlights</p>	<p>Shielded / Properly-aimed PAR Floodlights</p>

Illustrations by Bob Crelin © 2005. Rendered for the Town of Southampton, NY. Used with permission.



Less than 3000K





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Case Study 1. **Kielder Observatory**

- 11 full-time staff (8 astronomers), 3 part time with 3-5 regular casual workers
- Now has the most advanced suite of instruments and observatory outside of academia in the UK
- Runs around 600 events every year- reaching around 15,000 visitors
- 97% occupancy over the last year.
- KO visits every school in the North of Tyne, delivering talks and workshops, setting up Star Groups and providing CPD for teachers.
- KO delivered outreach work to over 15,000 children and young people in 2022.
- New Astro-imaging/research facility (opened in 2018)- our images have been used across the world in press and media.
- New Radio Telescope installed.



Case Study 2. **Battlesteads Hotel & Observatory**

- Observatory developed in partnership with Astro Ventures.
- Observatory runs a year-round calendar of events including “Shooting Star Suppers” .
- Observatory has encouraged additional visitors to the hotel and restaurant during the quieter autumn and winter period.
- Observatory has helped repeat business and extended bookings.
- Since opening in 2015, the Observatory has generated £45,000 in additional turnover into the business.
- We are currently investing in new equipment and hosting special events.



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Case Study 3. **Star Barn, Ingram**

- 80% occupancy rate this Autumn, and Winter in our 1st year.
- We welcomed over 100 guests to Star Barn Dark Sky Experiences, even when there hasn't been a clear night, guests have enjoyed a 'dark sky experience' with Dryrobes, Dark sky tours and presentations held at Ingram Village Hall nearby
- Partnerships developed with NASTRO, Newcastle University, and with local 5-star food companies, who have developed a 'Star themed' menu for guests.
- Astro-photography. Couples especially love having their picture taken under the stars.
- Currently working on a summer astronomy package for our Ingram Valley Farm Safari sunset safari.



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Ongoing business development & marketing

- 'Dark Skies Star Trails' tourism training programme, being led by Visit Northumberland helping businesses develop and promote 'bookable' dark sky experiences.
- NNPA investing in new dark sky facilities at Walltown Country Park.
- Ongoing interest from SMEs to develop stargazing experiences across Northumberland.

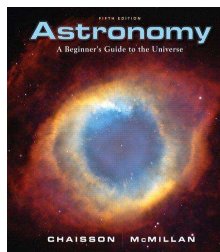
Tips

- Assess your own outside lighting - Is it dark-sky friendly?
- Emphasise to your customers the importance of ‘connecting with nature’, ‘timelessness’ ‘cosiness’ and use images that illustrate these qualities.
- Become familiar with astronomical events e.g. meteor showers, new moons, comets. etc. – and share your passion for dark skies with your guests.
- Explore the storytelling context to your dark skies e.g. Border Reivers, Banshees, etc
- Create new experiences that include ‘dark skies’.

Build your own Stargazing Kit



10x50





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Hire out your own Telescope



Sky Watcher 150P

- Initial Cost = £300
- Hire out to guests for £30 per night
- Telescope pays for itself after 10 Hires



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Useful websites

- <https://www.timeanddate.com> for astronomical calendar
- <https://www.spaceweather.com> for auroras and events
- [IRISH ASTRONOMICAL SOCIETY \(irishastro.org\)](https://www.irishastro.org)
- <https://irishastro.org/links/> or general information
- <https://www.darksky.org>



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Thank You!

e:duncan.wise@nnpa.org.uk

t: 07795834934