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## **TURNING NIGHT INTO DAY: THE FACTS ABOUT LIGHT POLLUTION**

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For many people the greatest joy comes from simply standing beneath a clear dark sky and marvelling at the heavens. Today, however, a growing majority of people can no longer see the true beauty of the night sky from their homes. Even some of the brightest stars are lost in the glare of light pollution from our towns, cities, roads and urban conurbations. For many people the sight of the Milky Way stretching across the night sky is a childhood memory; sadly, today a new generation is growing up who have never seen our own galaxy, the place we call home in the Universe.

There's no real definitive, overarching definition for the phenomenon known as light pollution, but here's a general way to break it down into types:

**Light Trespass:** Any light shining where it is not needed or wanted. Examples include street lights shining into gardens and windows of adjacent houses. Light trespass has been linked indirectly to increased risk of specific cancers, as over-exposure to light when sleeping impedes the production and maintenance of the key hormones melatonin and oestrogen in the body. Light trespass levels that disrupt sleep are linked to a deterioration of the immune system. Light trespass court cases are increasing throughout Western societies.

**Glare:** This usually happens when lights aim directly into people's eyes; in other words, you see straight into the source of the light. Driving around at night, you've probably run across many lights emitting eye-scorching examples of glare (headlights are an excellent case in point). This can be a dangerous phenomenon when being able to see at night is paramount to everybody's safety.

**Sky Glow:** The orange glow we see over towns and cities caused by upwardly directed or reflected light. This form of light pollution is of particular concern to astronomers as it is responsible for creating a blinding effect over the night sky. In weather conditions, such as rain, wind, and high pollution, sky glow makes it very hard for astronomers to see anything but the most luminous stars and planets. Adverse behavioural effects have been recorded in many species of animals, such as sea turtles and birds that rely on the night sky for breeding and navigational purposes.

**Light Clutter:** Over-illumination has little effect on the environment, but is linked to health problems, such as headaches and increased stress levels. Light clutter is excessive brightness caused by groups of poorly placed lights. It is of most concern to drivers and pilots as it can cause confusion and disorientation. The style of lighting used in Las Vegas casino advertising is a classic example of light clutter. It does not have much of a direct effect on the environment especially since most animals besides humans seem to avoid such areas. All of these forms of light pollution are a waste of energy and a drain on our natural resources such as oil and petroleum.

While there are other names sometimes used to describe the above and similar lighting issues, the basic idea to keep in mind is that light pollution involves too much artificial light (often because of poorly chosen light bulbs, arrangements and fixtures) shining at the wrong time of "day" and typically resulting in grave consequences. Darkness at night is *normal*. Everyone should be entitled to see the Milky Way in the night sky. To achieve this, guidelines and controls are required, not necessarily to ensure *less light*, but to ensure *better light*.