Appeal to the European Commission to include light pollution mitigation in its environmental policies

Adopted during YEPP Council Meeting – Athens, 23rd November 2024

Presented by: TOP tým (Czech Republic)

Supported by: YFG (Ireland), KDMS (Slovakia), Junge Mitte (Switzerland), KDU (Sweden), Mladí lidovci (Czech Republic), CDJA (Netherlands), FIG (Italy), MHDZ (Croatia)

Recognizing that:

- Artificial light at night is a growing phenomenon and hand-in-hand with that, light pollution increases by 10 % annually[1].
- Light from indoor and outdoor sources leaks into the environment as so-called light pollution. Light pollution originating from densely populated areas or industrial sites cumulates and spreads tens of kilometres away from the original source[2].
- Scientific studies credibly describe the impact of artificial light and light pollution on humans and wildlife and conclude that it is harmful to humans and wildlife, very significantly to nocturnal animals.
- By selecting a suitable light source, installing it appropriately and regulating its operation, the light leakage into the atmosphere can be significantly reduced and the negative impact on humans and wildlife reduced, while maintaining its original purpose and utility.
- Reducing light pollution is in compliance with the objectives of the Green Deal for Europe: Energy savings and increasing energy efficiency and Protection and restoration of biodiversity.
- No European policy has yet specifically addressed light pollution, although the EP has adopted the following resolution, among others, in the context of the negotiations on the Nature Restoration Law:
  "Scientific evidence suggests that artificial light negatively impacts biodiversity. Artificial light can also impact human health. When preparing their national restoration plans under this Regulation, Member States should be able to consider to stop, reduce or remediate light pollution in all ecosystems[3]."
- Appeal of this resolution on light pollution reduction follows previously adopted documents, namely "Brno appeal to reduce light pollution in Europe" adopted

[1] Bará, Fabio and Falchi, Salvador. Light pollution is skyrocketing. *Science.* 379, 2023, 6629.
[2] Czech Astronomical Society. Světelné znečištění. [Online] https://svetelneznecisteni.cz/co-je-svetelne-znecisteni/nocni-obloha/.
[3] 2022/869, Position of the European Parliament adopted at first reading on 27 February 2024 with a view to the adoption of Regulation (EU) 2024/... of the European Parliament and of the Council on nature restoration and amending Regulation (EU).

during Czech Presidency of the EU Council[4], "Manifesto for Tackling Light Pollution & Proposing EU Light Pollution Monitoring" adopted during Spanish Presidency at the EU Council[5], and point 41 in "The 8th Environmental Action Programme Mid-term Review - The way forward to a green and just transition for a sustainable Europe - Council conclusions" by the EU Council[6].

Acknowledging that:

- Quantifying the exact amount of wasted light that escapes into the atmosphere without being used is not straightforward; some studies conducted in the United States suggest that approximately 30% of the light produced by outdoor lighting escapes into the atmosphere without being used[7].
- The amount of light leaking into the atmosphere is also affected by the spectral composition of the light, as shorter wavelengths (e.g. blue light) scatter more. Thus yellow light causes less pollution than blue light.
- The need for illumination, and some national standards associated with it, are derived from a photometry unit called Illuminance (unit lx). As the distance from the light source increases, the magnitude of illumination decreases quadratically. Therefore, by using lower lighting columns with appropriate optics, a substantial amount of energy can be saved while achieving the same lighting comfort. When using lower columns with lower luminous intensity, there is less light leakage into the atmosphere.
- Modern lighting (e.g. LED-based) allows easy power control or repeated full switching off and switching on, thus saving energy and light pollution in cases where their light is not currently needed (e.g. an empty street).
- Depending on its intensity and spectral composition, light affects the health of humans by suppressing circadian rhythm and thus changing the hormonal balance in the body, which leads to higher prevalence of diseases of civilisation (e.g. obesity, diabetes, cancer etc.)[8] [9] [10]. Circadian rhythm is sensitive to light via

---

[4] Light Pollution 2022. *'Brno appeal to reduce light pollution in Europe'.* Brno : Czech Presidency of the Council of the European Union, 2022.

[5] Meeting on Light Pollution: Challenges and Responses for Monitoring. *Manifesto for Tackling Light Pollution & Proposing EU Light Pollution Monitoring.* Granada : Spanish Presidency at the EU Council, 2023.

[6] Council of the European Union. *The 8th Environmental Action Programme Mid-term Review - The way forward to a green and just transition for a sustainable Europe - Council conclusions.* Brussels : Council of the European Union, 2024.

[7] DarkSky. *Light pollution wastes energy and money and damages the climate.* 2023. https://darksky.org/resources/what-is-light-pollution/effects/energy-climate/.

[8] Stevens, Richard G., et al. Breast Cancer and Circadian Disruption from Electric Lighting in the Modern World. *CA Cancer J Clin.* 2014, Vol. 64, 3.

[9] Brainard, G. C., et al. Action Spectrum for Melatonin Regulation in Humans: Evidence for. *The Journal of Neuroscience.* 2001, Vol. 21, 16.

[10] Cajochen, C., et al. High Sensitivity of Human Melatonin, Alertness,. *The Journal of Clinical Endocrinology & Metabolism.* 2004, Vol. 90, 3.

intrinsically photosensitive retinal ganglion cells located in eyes, with peak sensitivity on azure light (blue-green)[11].

- Depending on its intensity and spectral composition, light affects wildlife including, for example, the ability to reproduce and survive of nocturnal insect[12] [13] [14].
- Above mentioned studies agree that lighting intensity should be reduced at night and only light sources that do not emit short wavelengths should be used.

YEPP calls on:

The European Commission to consider the following legislative actions within the framework of the EU Biodiversity Strategy for 2030:

1. **Amend the Ecodesign Directive (2009/125/EC)** to include specific requirements for outdoor lighting installations. This would mandate the deactivation of unnecessary luminaires in public spaces and ensure the correct installation and adjustment of both existing and new light sources.
   European Environment Agency
2. **Revise the Energy Efficiency Directive (2012/27/EU)** to support the replacement of non-compliant light sources with those meeting updated energy efficiency and environmental standards. This would facilitate the transition to lighting solutions that align with new recommendations.
   European Environment Agency
3. **Update the Habitats Directive (92/43/EEC)** to promote the installation of public street lighting that minimizes impact on the circadian rhythms of humans and wildlife.
   European Environment Agency
4. **Enhance the Road Infrastructure Safety Management Directive (2008/96/EC)** to mandate public lighting systems capable of adjusting light intensity based on traffic volume. This would ensure optimal lighting levels, improve energy efficiency, and reduce light pollution during periods of low traffic. European Environment Agency

5. Develop a European guide for sustainable lighting, based on best practices from member states, to serve as a reference for municipalities.

---

[11] Baskaran, Ranjay Chakraborty and Michael J. Collins and Henry Kricancic and Daniel Moderiano and Brett Davis and David Alonso-Caneiro and Fan Yi and Karthikeyan. The intrinsically photosensitive retinal ganglion cell (ipRGC) mediated pupil response in young adult humans with refractive errors. *Journal of Optometry.* 15, 2022, 2.

[12] DarkSky. *Light pollution harms wildlife and ecosystems.* https://darksky.org/resources/what-is-light-pollution/effects/wildlife-ecosystems/.

[13] Jägerbrand, A. K. a Bouroussis, C. A. Ecological Impact of Artificial Light at Night: EffectiveStrategies and Measures to Deal with Protected Speciesand Habitats. *Sustainability.* 2021, Sv. 13, 5.

[14] Owens, A. C. S. a Lewis, S. M. The impact of artificial light at night on nocturnal insects: A review and synthesis. *Ecology and Evolution.* 2018, Sv. 8, 22.