



Council of the  
European Union

Brussels, 13 December 2022  
(OR. en)

15972/22

ENV 1296  
CLIMA 671  
ENER 682

**NOTE**

---

From: General Secretariat of the Council  
To: Delegations

---

Subject: International workshop – ‘Light Pollution 2022’  
(Brno, Czech Republic, 26 October 2022)  
= Information note from the Presidency

---

Delegations will find in the Annex an information note from the Presidency on the above subject, to be dealt with under "Any other business" at the Council (Environment) meeting on 20 December 2022.

**International workshop – ‘Light Pollution 2022’**

**(Brno, Czech Republic, 26 October 2022)**

**– Information note from the Presidency –**

In October 2022, the Czech Presidency organised an **international workshop on light pollution**, one of the topics of focus of the Presidency. This event marked an important step forward in light pollution reduction efforts, as it was the **first time that light pollution was chosen as a European topic by a Presidency**. The purpose of the workshop was to **bring attention to the topic** at European level, to **bring together light pollution experts from various European countries**, and to **identify areas where Europe-wide solutions might be possible**.

There is growing scientific evidence to confirm the harmful effects of night-time light on living organisms. These include sleep disturbance, suppression of hormone secretion, alteration of migratory, mating, feeding, predatory and other behaviour patterns, and distortion of vegetation periods, among others. Thus, the need to protect the night environment, and to prevent and reduce light pollution and its impacts on biodiversity and ecosystems, human health and well-being, and astronomy, guided us to open the Europe-wide discussion.

The workshop format was chosen in order to emphasise the participative nature of the event, allowing experts to meet in person (for the first time in most cases), and to **enable intensive experience sharing and mutual information exchange**. The participants included **representatives from 19 EU/EFTA Member States, light pollution scholars and scientists, lighting engineers, and environmental NGOs**.

After the official opening by the hosts of the event, **Senator of the Parliament of the Czech Republic and Director of the Brno Observatory and Planetarium** (venue) Jiří Dušek and **Deputy Minister for the Section of Climate Change at the Ministry of the Environment** Jan Dušík, three speakers set the scene with insights into the international (Ruskin Hartley, **Executive Director of the International Dark-Sky Association**), national (Anna Pasková, **Director of the Department of Environmental Policy and Sustainable Development**) and European (Joachim d'Eugenio, **Policy Advisor for Zero Pollution, DG ENVI**) perspective. Their presentations were followed by three panel discussions on the topics of addressing light pollution through:

1. legislation and standards
2. funding and regional planning
3. research and awareness

The panel topics were chosen for two main reasons: firstly, they are often seen as possible pathways for searching for solutions to light pollution; secondly, each topic revealed a portion of the complexity that characterises this issue.

A key outcome of the workshop was the adoption of the **Brno Appeal to reduce light pollution in Europe** ('the Brno Appeal'), **calling for light pollution to be acknowledged as an issue of concern and an additional source of pressure on the environment and human health and providing a list of possible areas for action at European, national and local level.**

Participants were invited to comment on the text of the Brno Appeal prior to the workshop, thus the approved document set out in Annex I to this information note is the result of a consensus. The Brno Appeal reminds decision-makers at all levels of three golden rules for correct lighting, showing how simple it is to prevent light pollution:

- firstly, illuminating only where and when necessary, i.e. avoiding over-lighting, excessive or unnecessary lighting;
- secondly, adjusting the direction of the light towards the lower hemisphere and away from vulnerable habitats, which eliminates a major portion of obtrusive light;
- thirdly, controlling the content of blue-light emissions by correct spectral distribution of light sources, and regulating the timing and intensity of the light, which in turn fulfils the first rule.

Not only do these golden rules contribute to the reduction of light pollution, but the requirement to adjust the timing and amount of light effectively means saving energy in the context of the current energy crisis, as well as contributing to climate change mitigation. Moreover, protecting vulnerable habitats from light pollution reduces the pressure on ecosystems.

A working paper on ‘**Light pollution reduction measures in Europe**’<sup>1</sup>, which was drawn up by the Presidency in collaboration with representatives of European countries, formed the basis for the workshop. It maps planned and existing actions on light pollution in EU/EFTA countries. These actions include: legislation at national level (such as in France or Croatia) or regional level (Spain); national technical standards (Austria, Czech Republic) guiding the choice of light sources; non-binding manuals and guidelines issued by authorities for various application areas (e.g. Switzerland, Sweden); and other actions, initiatives, websites or dark-sky areas. The working paper revealed that light pollution reduction measures are in place in most European countries and new initiatives are constantly evolving.

More information on the event, including the content of the presentations, accompanying documents and a link to the record of the event, can be found on the Ministry of the Environment’s website<sup>2</sup>.

---

<sup>1</sup> [https://www.mzp.cz/C125750E003B698B/en/light\\_pollution\\_2022/\\$FILE/SOTPR-Light\\_pollution\\_reduction\\_measures\\_in\\_Europe-20221014.pdf](https://www.mzp.cz/C125750E003B698B/en/light_pollution_2022/$FILE/SOTPR-Light_pollution_reduction_measures_in_Europe-20221014.pdf)

<sup>2</sup> [https://www.mzp.cz/en/light\\_pollution\\_workshop\\_2022](https://www.mzp.cz/en/light_pollution_workshop_2022)

## **The ‘Brno appeal to reduce light pollution in Europe’**

*We, participants of the international workshop Light Pollution 2022, held on October 26<sup>th</sup> 2022 in Brno, Czech Republic,*

*acknowledging* the scientific evidence on effects of light on living organisms during the night, including sleep disturbance, suppression of hormone secretion, alteration of migration, mating, feeding, predatory and other types of behaviour, distortion of vegetation periods, and others,

*expressing concern over* satellite data showing that global light pollution has increased by at least 49% over the 25 years to 2017<sup>3</sup> and that there are hardly any areas with complete night darkness left in Europe<sup>4</sup>,

*emphasizing* the need to protect the night environment and thus to prevent and reduce light pollution and its impacts on biodiversity and ecosystems, human health and well-being, and astronomy,

*recalling* the many internationally accepted documents in support of the protection of the night environment, such as, but not limited to: Declaration on the Reduction of Adverse Environmental Impacts on Astronomy, adopted at the meeting IAU/ICSU/UNESCO (1992), the IAC/UNESCO/UNWTO/IAU/UNEP-CMS/Ramsar-Convention International Declaration in Defence of the Night Sky and the Right to Starlight, adopted during the Starlight Conference (2007), the UN CMS Resolution 13.5 on Light Pollution Guidelines for Wildlife, the UNEP/EUROBATS Resolution 8.6 Bats and Light Pollution and the Dark and Quiet Skies for Science and Society,

---

<sup>3</sup> Sánchez de Miguel, Alejandro, Bennie, Jonathan, Rosenfeld, Emma, Dzurjak, Simon and Gaston, Kevin J. (2021) First Estimation of Global Trends in Nocturnal Power Emissions Reveals Acceleration of Light Pollution. *Remote Sensing* [online]. 13(16). ISSN 2072-4292. doi:10.3390/rs13163311

<sup>4</sup> Falchi, Fabio, Cinzano, Pierantonio, Duriscoe, Dan, Kyba, Christopher, Elvidge, Christopher, Baugh, Kimberly, Portnov, Boris, Rybnikova, Nataliya and Furgoni, Riccardo. (2016) The new world atlas of artificial night sky brightness. *Science Advances*. 2. e1600377-e1600377. 10.1126/sciadv.1600377.

*noting* that switching to LED light sources, although they may be more energy-efficient than many predecesing light sources, may lead to a rebound effect of increased lighting levels and a higher amount of blue light emitted due to their spectral composition,

*recognizing* that recent research is questioning whether the empirical basis of the lighting levels proposed in outdoor lighting standards<sup>5</sup> is well grounded with regard to the effects on the environment as unfounded standards may cause over-lit outdoor environments,

*emphasizing* that the consequences of over-lighting or unnecessary lighting in terms of carbon emissions and cost of wasted energy are ever-rising amidst current fuel shortages and surging electricity prices,

*stressing* that light knows no borders as a light source can easily affect vast areas, which justifies the need for states to act in a coordinated manner,

*recognizing* the absence of internationally agreed metrics for quantifying light pollution and indicators,

1. *Remind* decision-makers at all levels that, although the effects of artificial lighting at night are far-reaching and complex, options for their prevention are often simple. The three golden rules for correct lighting are:
  - only illuminate where and when necessary for public needs or work task, use shields if needed to avoid spill-over;
  - do not direct the light towards the upper hemisphere or towards vulnerable habitats including natural bodies of water;
  - regulate the timing, intensity, spectral distribution and colour temperature of the lights based on needs and environmental conditions;

---

<sup>5</sup> Fotios, Steve, Gibbons, Ronald B. (2018) Road lighting research for drivers and pedestrians: The basis of luminance and illuminance recommendations. *Lighting Research & Technology*. 50(1):154-186. doi:10.1177/1477153517739055

2. *Call upon* the European Union’s Member States and the European Commission to acknowledge light pollution as an issue of concern and recognised additional pressure on the environment and human health, and to reflect on how to best address the issue at European or national level, including by considering the below list of possible actions:

- address light pollution in the EU environmental protection policy and legislation, including the EU Biodiversity Strategy for 2030, the Habitats and Birds Directives with their Natura 2000 network and the upcoming Nature Restoration Law, including in their implementation documents, and explore the possibility of application of dark areas and corridors;
- use the available instruments to evaluate effects of artificial lighting in permitting procedures such as building permits, zoning permits, EIA<sup>6</sup>, Natura 2000 assessments and urban planning procedures;
- review available lighting standards and initiate new standards if needed both on the national and international level, ensuring that standards are evidence based and address reliable research on minimum traffic safety and work task-related needs,
- explore light pollution control mechanisms such as dimming, motion sensors, limiting blue light emissions and provide support through funding programmes for the reconstruction or installation of new public lighting systems;
- review the Green Public Procurement criteria for Road Lighting and traffic signals<sup>7</sup> with respect to ensuring sustainability of the outdoor lighting and adjust luminance, illuminance and efficacy levels, proposing standardized indicators and metrics, and promote their application in lighting projects,
- review the ecodesign requirement for light sources<sup>8</sup> and consider adverse effects of lighting on biodiversity,

---

<sup>6</sup> The EIA Directive already provides that an estimate of inter alia light emissions by a given project is included in the EIA report prepared by the developer and subject to public participation.

<sup>7</sup> Donatello S., et al., Revision of the EU Green Public Procurement Criteria for Road Lighting and traffic signals, EUR 29631 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-79-99077-9, doi:10.2760/372897, JRC115406

<sup>8</sup> Commission Regulation (EU) 2019/2020 of 1 October 2019 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012

- support research on light pollution impacts on biodiversity, ecosystem services and human health as well as interdisciplinary projects on road, pedestrian or working safety and ecosystem impacts of lit areas and pilot projects on least environmentally harmful lighting, particularly in sensitive areas;
  - develop common indicators and monitoring approaches for light pollution that address relevant parameters for assessing the impact on the environment and human health through research, establish coordinated monitoring of light pollution at European level and if necessary on national level, e.g. by including light pollution in the monitoring scheme for the Zero Pollution Action Plan or Biodiversity Strategy;
  - promote awareness raising of relevant authorities, stakeholders as well as the general public on possible collective and individual actions to prevent light pollution until systemic measures are adopted;
3. *Recall* the importance of applying the energy efficiency first principle as well as the Do No Harm principle to every legislative, investment and planning decision;
  4. *Recognize* the need for policy coherence amongst biodiversity, climate and energy policies and aligning them with light pollution control;
  5. *Remind* that a European-wide approach can build upon the existing body of knowledge in some European countries, as well as various research financing programmes and projects, such as LIFE or Interreg;
  6. *Underline* that since light pollution already figures on the list of pollutants of emerging concern in the Zero Pollution Action Plan, it is important to follow up with a framework for systematic, continuous and thorough monitoring of its effects on biodiversity, ecosystem services and human health; the first Zero Pollution Monitoring and Outlook Report, due for publishing in 2022, can provide insights on what monitoring data should be collected.

**This is our ‘Brno appeal to reduce light pollution in Europe’ that we agreed on during the workshop.**

---