

Go Green Illinois July 14, 2020 Meeting Minutes

Protecting Our Skies: Air and Light Pollution - Problems and Solutions

LIGHT POLLUTION

Ken Walczak, Adler Planetarium

If you look at a map of the U.S. from satellite, there's a great deal of light emanating into space.

Examples of some of the ecological impacts of light pollution:

Hatchling turtles: Baby turtles head toward light after emerging from the sand. While the ocean reflecting starlight is traditionally the brightest thing nearby, artificial lights can turn the turtles away from water and put them in harm's way.

Migrating birds: Many migrate at night, guiding themselves with the moon and stars. This is disrupted by artificial lights.

Mayflies: An important food source for aquatic organisms. In the absence of artificial light, polarized light leads mayflies to water. LED lights, however, attract them instead.

Moths and other pollinators: These require plants as food during the caterpillar stage. In the Denver area, research has found that grasslands that are lit by artificial lights at night produce less nutritious plants, a problem for moth caterpillars.

Health impacts of light pollution for humans:

Human biochemistry is disrupted by artificial lights, which can lead to weight gain.

Melatonin production is reduced.

Associated with effects on sleep, stress, obesity.

Cancer incidence is higher and efficacy of treatment is reduced.

Economic impacts of light pollution

See images from space and map comparing Chicago metro area with Berlin. Chicago is much brighter (similar size population)

Light pollution is inefficient. Much light energy is pointed into the sky with no benefit but costing money for homeowners and taxpayers.

Expensive. Night lighting costs the city of Chicago \$20,000 per hour. Also much increased carbon emissions to produce all this excess light.

What concerns are voiced about dark skies?

Safety is the first argument made against dark skies, but is the current light level really necessary? Little research exists on the impact of lighting on crime rates. The perception is that brighter light is safer. However, one study in Chicago showed that brighter lights actually increased crime.

Instead there are benefits of dark skies. Over human history, skies (i.e., star patterns and moon cycles) have remained relatively constant. Dark sky appreciation encourages creative thinking; has a calming effect; and encourages concentration

What can an individual do?

Use only the intensity of light you need, where it's needed and when it's needed. Use shielding, for example, to point light sources where they're needed, and timers to turn off lights.

Use only warm lights. Blue light has more negative effects on wildlife. Light warmth is measured in kelvins (2,700 k is equal to natural light).

Join the International Dark Sky Association at darksky.org.

Adam Kruezer, International Dark Skies Association Ambassador:

IDA is an international organization founded in 1980. Guides groups to encourage governments, parks and other organizations to be better informed about light pollution. The introduction of LEDs has made the light pollution problem worse in recent years. More of them use blue light.

IDA has resources for starting conversations in your municipality. Also sample ordinances. They suggest that people talk about energy savings, especially with commercial entities.

IDA suggests writing letters to neighbors with a focus, such as fireflies, which are negatively affected by light pollution. There are sample letters on the GGI website (<https://www.gogreenillinois.org/download/dark-skies-materials/>).

IDA is working on legislation to propose to the City of Chicago.

Homer Glen is a dark skies community.

Kim Stone, Councilwoman, City of Highland Park:

The HP City Council has updated the lighting code to require dark skies compliant fixtures for some new buildings, and to require fixtures of 3000 kelvin or less.

Discussion of best level of kelvins. Lower k is better. 2,700 is equivalent to natural light, but less than 3,000 is good. The indication that a bulb is "soft white" means that it is a good k level.

AIR POLLUTION

Brian Urbaszewski of Respiratory Health Association

RHA focuses on education, research and policy change to improve respiratory health.

Over the past several days, the pollution levels in Chicago have exceeded those in LA, even despite traffic patterns being reduced by COVID-19. We have had 17 days violating air quality health standards this year.

Why is the RHA interested in air quality? It has a direct impact on the lungs. Especially two components of air quality: Ozone and fine particulates, known as PM2.5 (which are smaller than sand grains).

Ozone oxidizes lung tissue, resulting in inflammation and associated symptoms. Some groups are more sensitive than others.

PM2.5 is associated with strokes, heart attacks. Very dangerous because of their size. They bypass natural protections in the nose and lungs.

Both are associated with premature death in the U.S.

Air pollution is created by chemicals interacting in sunlight. Ozone forms when emissions interact with NO₂ and VOCs in sunlight. PM_{2.5} happens with ammonia from agriculture and emissions interact with NO₂ and SO₂ from high sulfur coal, a problem in Illinois because of coal burning power plants.

EPA's AirNow system shows how air pollution moves on the wind even to rural places 100-300 miles away from urban centers

See slide showing "layer cake" effect of air pollution contributors.

Upwind sources such as coal-fired power plants

Agriculture sources

Regional industry

Regional traffic

Local sources are only the frosting of the cake

All these sources also release carbon, which makes the smog process run faster

Hotter temperatures resulting from climate change make the problem worse

So, it is hard to treat air pollution at a local level. You must reduce the ingredients.

What can an individual do?

- Support the Clean Energy Jobs Act in Illinois. This calls for no fossil fuel power generation by 2030 and all renewable sources by 2050. Also calls for changing infrastructure to reduce vehicle emissions.
- Tell the U.S. EPA to use science to set health standards. The EPA has set a weak bar and is not tightening Ozone standards. This is open for public comment.
- Check Gogreenillinois.org and <https://resphealth.org/> for action alerts.

What can communities do?

- Pass EV parking ordinances requiring that multi-unit developments include 20 percent of parking spaces wired for electricity, and that new single family homes include wiring for EV charging in garages.
- Pass ordinances requiring the use of electric yard equipment. Gas powered equipment is very dirty and often not well maintained. Alternatives exist. Ask: Can your public spaces be maintained with electric equipment? Can you require the use of electric equipment in your village?
- Illinois has money to spend on zero emission vehicle infrastructure that it has not spent and has no plan for spending. Ask your state legislators to put a plan in place to invest this money wisely.
- Contact your legislators and the Governor's office to ask that they pass the Clean Energy Jobs Bill in the fall 2020 veto session.
- Push ComEd to invest in EV charging infrastructure.

Q&A

How bad are wood burning fireplaces? Yes, they are a problem. They create particulate matter and VOCs. The smoke is like cigar or cigarette smoke.

What is the status of CEJA? A new version will be released soon. The governor's office is hosting working groups also on other clean energy bills. The governor wants consensus on the issue. (The recent ComEd scandal may impact the timing of CEJA.)

Kelly Nichols is a great resource. Now works at RHA, formerly of Moms Clean Air Force.

Beth Drucker: Two additional issues for the member groups to consider are promoting community solar and looking into backyard mosquito spraying by private contractors. Go Green Wilmette has found ways to stay relevant with Farmer's Market booths, where we have posters with QR codes that inform people of our projects; socially-distanced beach clean-ups; videotaping to create a virtual sustainable yard tour; and planning an American Green Zone Alliance (AGZA) workshop in the fall for the trade to promote the use of cleaner equipment and greener lawn care practices. All GGIL groups will be invited to send reps from their community, school and park districts.

Winnetka: Has been regrouping, adding new board members, updating website during COVID.

Riverwoods: Virtual programs on water issues.

Northfield - Planning Go Green Reads on July 20th.

Northbrook - CRTI grant received for trees. Will receive 20 trees to plant in local parks. Conducting webinar on water.

Lake Forest - Now has an EEC representative on City Council that is reaching out to them; has started a landscape contractor questionnaire effort; encouraging no plasticware distribution from local restaurants; with Lake Forest garden club, has an ongoing education effort on what to recycle in curbside; hosted a no idling event on Zoom.

Highland Park - Highland Park Community Foundation has agreed to serve as our fiscal agent, as we decided that we don't have the capacity to become our own 501(c)(3) at this time. This means GGHP can accept donations. Creating an "Eco-Hero Gallery," which encourages people to send in photos of eco-heroes; has a take-out food guide, what you can do to reduce waste, and working on a landscaper survey.

Glencoe - Green Bay trail is in bloom (come and enjoy); no in-person events, but now conducting photo contest; discussions with village board using EcoDistrict protocol (which provides comprehensive planning) out of Seattle; upcoming programming on Lake Michigan and responsibilities of living on/near it.

Evanston - Value of Trees and Social Justice; restorations in underserved areas; enforcing leaf blower ordinance; pollinator pledge as a petition for better grounds management; tree fund for city Elm treatment program.

The next GGIL Meeting will be on September 8 from 1 - 3pm. Topic and location/format to be determined.