Health Impacts, Disability Rights, and Regulatory Status of LED Streetlights

Prepared for Henderson, Nevada by the Soft Lights Foundation

April 19, 2024

Executive Summary

The widespread release of LED streetlights over the past decade has provided significant evidence that LED streetlights are hazardous to human health, create illegal discriminatory barriers that prevent full and equal access for individuals with disabilities, and may be implicated in the large increase in pedestrian deaths during that time frame.

- LEDs emit radiation that is in the visible portion of the electromagnetic spectrum.
- Other than the radiation emitted being in the visible part of the electromagnetic spectrum, LED radiation shares no other traits with the radiation emitted by traditional light sources. The spatial, spectral, and temporal properties of LED radiation is dramatically different from the properties of traditional light sources.
- The US Food and Drug Administration has not vetted LED streetlights for health or safety and has not published the performance standards mandated by federal law. Thus, there is no underlying legal foundation for installing LED streetlights.
- An LED streetlight conversion is an alteration to a city service. The alteration is required by federal law to be readily accessible and usable to individuals with disabilities. SInce LED streetlights prevent certain individuals with disabilities from full and equal access to city streets and sidewalks, LED streetlights fail to comply with federal disability rights laws.
- Existing High Pressure Sodium street lights have a Correlated Color Temperature of approximately 2100 Kelvin and use diffusers and refractive lenses to spread the light uniformly. LED streetlights typically have a much higher CCT (3000K to 4000K), which increases glare, light pollution, and harm to human health, and which decreases safety.

US Food and Drug Administration

The US Food and Drug Administration is the only federal agency with the mandate and authority from Congress to regulate electromagnetic radiation from electronic products, as per 21 U.S.C. 360hh - 360ss. All other federal agencies have deferred, in writing, to the FDA for publication of performance standards for LED products, including LED streetlights. For example, the US Department of Energy, which has promoted the switch to LED streetlights, has confirmed that the DOE does not have the authority to regulate LED streetlights because this authority rests solely with the FDA. It is an error for the DOE to have been promoting LED streetlights without having collaborated with the FDA in the evaluation of the radiation emitted by LED streetlights. By law, the FDA is required to collaborate with the DOE to develop and publish performance standards for LED streetlights to ensure the comfort, health, safety, and civil rights of the public and the protection of the environment. Both the DOE and FDA are in violation of statute 21 U.S.C. 360ii.

Without federal performance standards in the Code of Federal Regulations, Ameresco has no foundational legal basis for selling, installing or operating LED streetlights. The Soft Lights Foundation submitted a citizen regulatory petition to the FDA on June 12, 2022 to compel the FDA to publish the required standards for LED products.[1] The FDA has not acted on this petition. The Soft Lights Foundation also submitted a citizen regulatory petition to the FDA specifically for LED streetlights.[2] The FDA has not acted on this petition either. Therefore, the President of the Soft Lights Foundation filed a Pro Se lawsuit against the FDA on January 24, 2024.[3]

Ameresco has not been transparent with cities about the lack of FDA standards, the requirements of 21 U.S.C. 360ii, the submission of the citizen petitions to the FDA, and the FDA lawsuit.

Disability Access

The Americans with Disabilities Act prohibits discrimination on the basis of a disability and requires that individuals with disabilities be provided full and equal access to city services such as streets and sidewalks. As per 28 C.F.R. § 35.151(b)(1), "*Each facility or part of a facility altered by, on behalf of, or for the use of a public entity in a manner that affects or could affect the usability of the facility or part of the facility shall,*

[1] https://www.regulations.gov/document/FDA-2022-P-1151-0001
[2] https://www.regulations.gov/document/FDA-2023-P-3879-0001
[3] https://www.softlights.org/wp-content/uploads/2024/01/Mark-Baker-vs.-FDA_filed.pdf

to the maximum extent feasible, be altered in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities, if the alteration was commenced after January 26, 1992."

A switch from HPS to LED streetlights is an alteration. Therefore, as per 28 C.F.R. 35.151(b)(1) and similar regulations, the alternation must result in a service or facility that is readily accessible and usable by individuals with disabilities. It has already been demonstrated that LED streetlights can trigger non-epileptic and epileptic seizures, migraines, and impaired cognitive functioning for individuals with epilepsy, migraines, electromagnetic sensitivity, photophobia, and others with ADA qualified disabilities. Therefore, it has already been established that an LED streetlight alteration does not provide readily accessible and usable streets and sidewalks. Thus, the installation of LED streetlights, without providing an accommodation that still provides full and equal access in the least restrictive environment to a city's streets and sidewalks, is a violation of 28 C.F.R. 35.151(b)(1).

The Village of Cambridge, New York, was perhaps the first municipality in the country to provide accommodation for LED streetlights. In that case, the Village of Cambridge reverted 5 LED street lights back to HPS street lights on the street where the individual with the disability lives to remove the discriminatory barrier created by the LED streetlight. However, by acknowledging the alternation requirements of readily accessible and usable services, but then only replacing 5 LED streetlights with HPS, the Village of Cambridge is still a violation of 28 C.F.R. 35.151(b)(1). The Village of Cambridge case is currently before the New York State Public Service Commission, primarily centering on the failure of the utility company National Grid to meet their tariff requirements of providing services that are safe, but also on issues of disability access.

Examples of requests for accommodation for LED streetlights in other cities include Ketchikan, Alaska, Irvine, California, and Philadelphia, Pennsylvania. Each of these administrative cases is in progress. The Village of Cambridge case shows that accommodation is readily achievable and not an undue burden on the municipality. In addition, a municipality cannot claim undue burden because the alteration is being made after 1992 and the law is clear that the alteration must provide a service that is readily accessible and usable for individuals with disabilities. Cities that ignore 28 C.F.R. 35.151(b)(1), even after having been made aware of the regulation, are acting with deliberate indifference, which is the standard used by the courts for compensatory damages.

Ameresco has not been transparent with cities on the requirements of 28 C.F.R. 35.151(b)(1).

Public Health

The Ameresco report to Henderson, Nevada states that a Key Takeaway is that, "*LED street lighting is unlikely to have negative effects on human health.*" This statement is not borne out by the thousands of peer-reviewed research studies that have been conducted over the past decade as LED streetlights have been installed across the world.[4] In truth, LED street lighting has been proven to be very harmful to human health, and on this issue alone, it is exceedingly difficult to justify the use of LED streetlights when considering the harm to human health.

Ameresco refers to the 2016 AMA report that highlighted the potential adverse health impacts of blue-right light. The lighting industry and utility companies pushed back on the conclusions of this report and moved forward with installing 5000K, 4000K, and 3000K LED streetlights, despite the warnings by the AMA. In the eight years since the AMA report was released, thousands of additional studies have confirmed that the AMA was correct and that blue-rich light is a serious phototoxin and that light exposure at night, especially blue-right light, strongly interferes with human circadian rhythms and the associated diseases related to circadian rhythm disruption.

- The February 14, 2024 study Influence of Light at Night on Allergic Diseases: A Systematic Review and Meta-Analysis found that artificial light increases the risk of allergic diseases.
- The October 9, 2023 study Day and night light exposure are associated with psychiatric disorders: an objective light study in >85,000 people found that increased exposure to light at night increases a person's risk for psychiatric disorders such as anxiety, bipolar and PTSD severity as well as self-harm.
- The October 4, 2023 study Lights should support circadian rhythms: evidence-based scientific consensus of 2,697 peer-reviewed publications showed the blue light at night is harmful.
- The June 23, 2023 study Outdoor artificial light at night and risk of early-onset dementia: A case-control study in the Modena population, Northern Italy showed a connection between artificial light at night and dementia.
- The March 16, 2023 study Light at night and cause-specific mortality risk in Mainland China: a nationwide observational study was the first study showing a direct correlation between artificial light at night and death and of the cellular risks of blue light exposure.

[4] https://www.softlights.org/human-health/

- The January 4, 2023 study Network-driven intracellular cAMP coordinates circadian rhythm in the suprachiasmatic nucleus showed that circadian rhythms are controlled by blue wavelength light.
- The December, 2022 study Associations Between Indoor Light Pollution and Unhealthy Outcomes in 2,947 Adults: Cross-sectional Analysis in HEIJO-KYO Cohort showed that artificial light at night levels are significantly associated with parameters of obesity, dyslipidemia, systemic inflammation, sleep disturbances, and depressive symptoms.
- The October 24, 2022 study Light Pollution Linked with Cognitive Decline showed that outdoor light pollution is directly related to cognitive decline.

Ameresco has not been transparent to cities about these peer-reviewed studies.

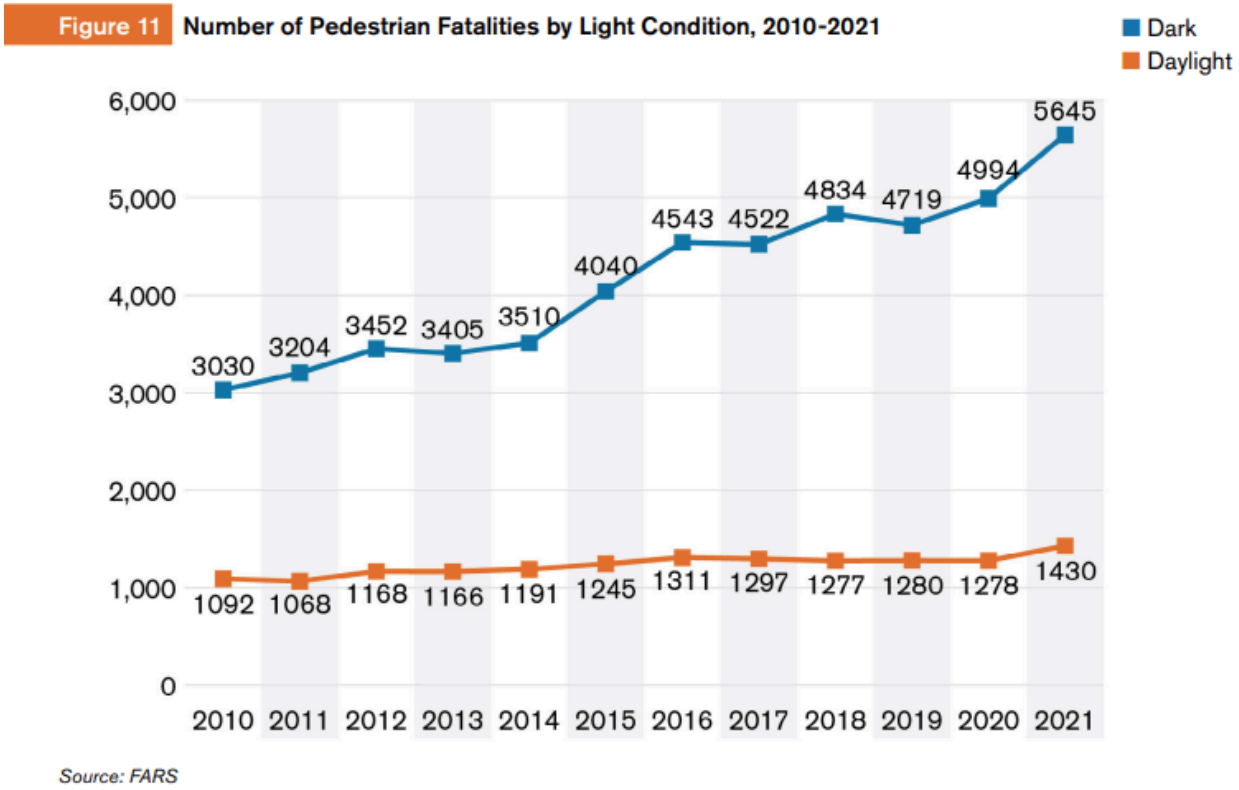
Ameresco states, "*Using 3000K CCT luminaires greatly reduces blue spectrum.*" This statement appears to be stated out of context, as 3000K contains less blue wavelength light than 4000K LED streetlights, but far more blue wavelength light than 2100K HPS street lights. Ameresco fails to justify the increase from 2100K HPS to 3000K LED and the corresponding adverse human health impacts.

Ameresco states, "*Illuminance dosages from roadway lighting are much lower than those experienced from consumer electronic devices such as cell phones, tablets and televisions.*" This is a misleading and problematic statement. LED display device intensity is measured using the metric 'luminance' in 'candela per square meter' or 'nit'. The 'illuminance' from the roadway surface is not a valid metric when measuring the impacts of light on human health. Ameresco's attempt to compare illuminance dosages from reflected roadway lighting and the direct luminance value from the LED luminaire is invalid and cannot be used to draw any conclusions about health.

Ameresco refers to the National Cooperative Highway Research Program 2021 study titled LED Roadway Lighting: Impact on Driver Sleep Health and Alertness and states that this report rebuts the 2016 AMA report. However, as is noted by Ameresco, the NCHRP fails to understand that the metric for studying the impacts of light on human health is 'luminance', not 'illuminance', and thus the NCHRP study has already been debunked. The NCHRP report fails to overcome the thousands of peer-reviewed research studies performed in the past decade that show that artificial light at night, and blue wavelength light in particular poses a serious threat to human health and Ameresco fails to justify why it is necessary to use 3000K CCT instead of 2200K CCT.

Public Safety

The Governors Highway Safety Association 2022 report titled Pedestrian Traffic Fatalities by State shows an alarming trend in pedestrian fatalities at night.[5] The graphic below shows that pedestrian fatalities at night increased by 86% since 2010, while pedestrian fatalities during the day have increased by 31%.



While both day and night pedestrian fatalities increased significantly, the dramatic percentage difference between the increase in day and night pedestrian fatalities must be investigated. The switch to larger and taller trucks since 2010 may be an explanation for the increase in both day and night pedestrian fatalities. As per the GHSA report, the number of deaths involving SUVs increased 120%, while deaths involving passenger cars grew 26% from 2012 to 2021.

However, LED street lighting and LED headlights began appearing during the time frame shown in the graphic above. According to the marketing materials promoted by utility companies and the automotive industry, LED lighting should have improved

5 https://www.ghsa.org/sites/default/files/2023-06/GHSA%20-%20Pedestrian%20Traffic%20Fatalities%20by%20State%2C%202022%20Preliminary%20Data%20%28January-December%29.pdf

safety. Instead, the data shows the opposite trend, with pedestrian safety greatly reduced during the time frame that LED lighting greatly increased. Therefore, there appears to be a strong positive correlation between the use of LED lighting and pedestrian deaths.

Visual Performance

The goal of roadway lighting is to provide visibility for pedestrians that lack personal light sources, as well as extending visibility for drivers beyond their headlights. Selecting the optimal light fixture improves visibility, creating a safer and more accessible environment. Selecting light fixtures of poor design can lower system efficiency, reduce visibility benefits and create undue levels of glare. A common catalyst of suboptimal LED streetlight installations is the failure to examine a thorough body of evidence. Ameresco demonstrates knowledge in utility engineering and product sales, but fails to provide evidence on interactions between roadway lighting and the human visual system.

The human visual system is built around 2 classes of image-forming light-sensitive cells within the retina, cone cells and rod cells.

- Cone cells operate at higher levels of light (photopic vision), above ~0.001 cd/m^2.
- Cone cells provide sharp, high-acuity vision.
- Cone cells perceive colors.
- Cone cells adapt relatively quickly to changing levels of light.
- Cone cells have a peak sensitivity to yellow light, around 550 nm.
- Cone cells are heavily concentrated at the center of the retina (focal vision).
- Rod cells operate at lower levels of light (scotopic vision), below 10 cd/m^2.
- Rod cells cannot perceive color and provide low-acuity vision.
- Rod cells have a peak sensitivity to bluish-green light, around 500 nm.
- Rod cells are sensitive to light and require lengthy adaptation periods before they can provide scotopic vision.
- Rod cells inhabit the peripheral field of the retina.

A primary focus of research conducted on visual performance and roadway lighting centers around mesopic visual performance, the range of light levels in which both cone cells and rod cells are active. A popular, but invalid, theory is that light sources of a bluer spectrum can maintain visual performance at lower levels of light. This invalid theory is based on the increased light sensitivity of rod cells which are most sensitive to bluish-green light. The potential advantage of blue light is the primary driver

behind transitions from yellow-amber sodium lighting to ‘white’ LED lighting. Mesopic visual performance can be examined at 3 different levels; Laboratory tests, Real world tests and the Biological mechanics of vision.

Laboratory tests, such as those conducted for the Mesopic Optimization of Visual Performance, find situational advantages for blue light in simulated dusk-to-dawn illumination. These simulations gave subjects up to 30 minutes to adapt to light levels no higher than 10 cd/m^2. Subjects were also trained to use a focus point, ensuring that targets away from the center of the simulation were detected with peripheral vision. The study made the following findings:

- Blue light provided improved performance for peripheral vision up to 0.6cd/m2.
- Focal vision saw no improvements under blue light at any luminance level.
- Results from these tests were used to create visual performance models based around the scotopic to photopic ratio.
- These visual performance models are used to estimate safe reductions in roadway luminance levels enabled by providing a light spectrum better suited for rod cells.

A significant real world test for mesopic visual performance models was conducted for the Federal Highway Administration in 2015. This research was conducted at a full-scale test track and included streetlights, vehicles and simulated pedestrians. The test results for detection of pedestrians under different spectrums of lighting (HPS 2100K, LED 3500K and LED 6000K) found no consistent differences between light spectrums for near-roadway targets. A difference in spectrum-based visual performance did not emerge until targets were 70 feet off of the roadway. These differences between laboratory-based models and real world test results can be explained by multiple factors.

- Unlike laboratory tests, real world vision exercises both conscious and subconscious eye movements. These eye movements mean that the majority of visual tasks intentionally fall under focal vision, as focal vision provides higher quality visual information.
- Exposure to high-luminance light sources in the real world greatly limits, if not completely eliminates, rod cell function.
- Even when targets are detected by peripheral vision, focal vision is still required to discern details that allow drivers to react appropriately.
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Understanding the biological mechanics of vision is critical to implementing optimal roadway lighting, yet these mechanics are virtually never examined by cities. In

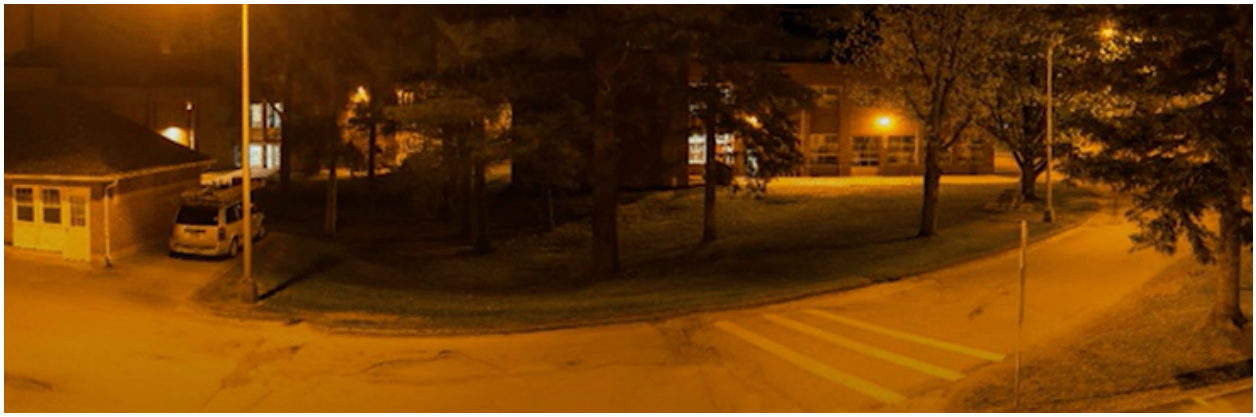
fact, when the biological mechanics of vision are considered every point of evidence often cited in support of ‘white’ dusk-to-dawn lighting is nullified and the use of 3000K, 4000K and 5000K LED street lights for visual acuity is not supported by the evidence.

- Rod cells must generate the photopigment Rhodopsin in order to gain sensitivity to light.
- Complete generation of photopigment can take upwards of 30 minutes.
- When exposed to bright light the photopigment becomes transparent in a process known as bleaching.
- High-luminance light sources such as streetlights and headlights can bleach rod cells within seconds, leaving them unable to perceive light.
- Rod cells also lose their adaptation to light when cone cells are exposed to high luminance light sources. Light sources, especially headlights and streetlights, are often bright enough to momentarily bleach cone cells - ensuring that rod cells lose their adaptation across the visual field.

When visual performance is given a thorough examination through the lens of human biology a troubling picture emerges. The transition to white LED roadway lighting is not supported by peer-reviewed scientific evidence on visual performance. Often-cited advantages of bluish-white light based on laboratory results fail to translate to the real world, as they are not compatible with the mechanics of the human visual system. The unreliability of rod-mediated scotopic vision and the greater quality of cone-mediated vision define the spectral characteristics of optimal roadway lighting. Based on the peak sensitivity of cone cells, in alignment with other factors such as minimized glare and ecological damage, **the optimal spectrum for outdoor dusk-to-dawn illumination is amber-yellow**. This conclusion is the opposite of that reached when a lesser scope of laboratory evidence is used without the context of real world tests and the biological mechanics of human vision, highlighting the importance of thorough evidence analysis.

Ameresco’s report shows a photo comparison of 5700K, 4000K, 3500K, and 3000K streetlights, but fails to include a 2100K or 1800K comparison.

As per the evidence provided above, light sources with a CCT of 2200K and below produce the lowest glare and provide the safest light. Examples of amber street lighting and red street lighting are shown below.



Glare and Discomfort

Glare is a primary complaint from many installations of dusk-to-dawn LED lighting. Failure to properly understand and mitigate streetlight discomfort glare could result in the City of Henderson becoming a less desirable, and less safe, place to be at night. Traditional discomfort glare models, such as those employed in streetlight projects, struggle to accurately measure discomfort glare. New and more in-depth research can provide a better, less subjective, understanding of discomfort glare.

- Spectral content of a light source plays a significant role in discomfort glare, with shorter (bluer) wavelengths of light producing more glare.
- Brain scans reveal that a mechanism of discomfort glare is the physical overloading of the visual system at multiple levels. One of these overloads is the saturation of cone cells in the retina.
- Contrast also plays a role in visual discomfort, high levels of contrast can create discomfort even if light levels are far below the predicted threshold for discomfort glare.
- Non-uniformity of a light source additionally creates discomfort. Many LED fixtures suffer from this issue, containing an array of diodes that are independently visible. LED fixtures must diffuse all diodes into a single, uniform

source of light to mitigate discomfort. These diffused, uniform fixtures have been preferred when participants were surveyed in multiple studies.
- Similar to other lighting studies, it is important to use metric ‘luminance’ rather than ‘illuminance’. When studied, glare varies with luminance levels even when illuminance on the eye is maintained at the same value. Usage of the illuminance metric instead of the luminance metric can result in a severe underestimate of predicted glare.

Due to its name, discomfort glare is sometimes assumed to be an issue of low importance. In their presentation, Ameresco incorrectly states that discomfort glare does not necessarily interfere with visibility. Extensive research paints a different picture however, highlighting the safety issues caused by discomfort glare.

- Discomfort glare forces glare-aversion responses, preventing people from performing the visual tasks required to safely navigate an environment.
- Discomfort glare has been identified as a mild stressor, even at low levels, similar to uncomfortable temperatures.
- Discomfort glare results in fatigue over time, likely from the aforementioned physical overloading of the visual system.
- Stress, even mild, as well as fatigue are consistently identified as factors in vehicle collisions.

A common issue of traditional glare models is the failure to account for transient glare, as subjects tested to produce such models often had long periods of exposure to steady glare sources. Cone cells cannot be saturated by a steady source of light, rather a flash or rapid increase to higher luminance levels are required for saturation. When test subjects are able to adapt to a steady light source, a primary mechanism of discomfort glare is missed. While it is difficult to test, model, and predict discomfort from transient glare sources, it is possible, and important, to minimize its impacts. Streetlights passing by at driving speed, or even appearing suddenly with changes in pedestrian gaze direction, can become sources of transient glare.

- Streetlight installations are particularly vulnerable to discomfort glare due to the relatively dark backgrounds around them.
- The reduction in ground illumination area under LED street lights compared to HPS street lights creates a higher-contrast visual scene, resulting in increased glare.

Transient glare, as well as overall discomfort glare, can be minimized by implementing large fixtures with proper diffusion to create a uniform, low-luminance light

source. Reduced luminance levels will minimize the risk of cone cells being saturated, and in turn reduce discomfort glare. Combined with a yellow-amber spectrum, these design features for minimized glare will greatly improve visibility, safety and the overall quality of the City of Henderson at night.

The April 17, 2024 study The Position Index of Overhead LED Sources Under Different Spectral Power Distributions and Background Luminances found that "*LED products can exhibit very high luminance values. Even when used at high angles they can be uncomfortably bright. Some emitters measure at over 1,000,000cd/m2, although those luminances are usually reduced with the use of diffusing materials or indirect optical systems.*"

The February 2, 2024 study The blue light hazard and its use on the evaluation of photochemical risk for domestic lighting. An in vivo study found that light spectrum matters, not just blue light and that the risk to cellular death from Visible Light has been drastically underestimated.

The January 16, 2024 study of 126,418 subjects titled Nighttime Outdoor Artificial Light and Risk of Age-Related Macular Degeneration found a correlation between Artificial Outdoor Light At Night and Exudative Age-related Macular Degeneration.

Crime and Lighting

Ameresco acknowledges that street lighting has not been shown to reduce crime. Ameresco referred to three papers on this topic:

• A 2008 review of 13 published studies on street lighting and crime found mixed evidence to support a connection between improved street lighting and reduced crime, and most American cities showed little to no effect of lighting on crime.

• A 2015 study in England and Wales found no evidence that dimming or turning off street lights at night affected crime rates.

• A paper titled "The Effect of Better Street Lighting on Crime and Fear" states better
lighting by itself has little effect on crime, stating "lighting has positive impact on public perceptions of crime-reduction, but does little to reduce real crime rates."

However, Ameresco then refers to the 2019 Urban Labs study:

• An experiment in New York City involving measuring the impact of increased lighting
at public housing facilities showed a 36% reduction in outdoor nighttime index Crimes.

The Urban Labs study used 600,000 lumen flood lights on a tower for a period of one week in an area that had approximately 7 outdoor crimes per year. The astronomically high intensity, the extraordinarily short period of testing, and the low number of total crimes makes the Urban Labs study statistically useless. No city is going to tolerate 600,000 lumen floodlights, and Ameresco is misleading Henderson by referencing the statistically meaningless 36% percent value quoted in the Urban Labs study.

The statements by Major Briscoe Edwards with the Henderson Police Department that "More lighting is better to reduce crime. Criminals don't like to operate in the light." are unfounded.[6] After decades of studies, the conclusion is that there is no positive correlation between crime and lighting. The use of street lighting cannot be used to reduce crime and Ameresco concurs.

Environmental Health

LED street lights have a significant adverse impact on the environment. If Henderson is using federal funds for any LED street light project, a National Environmental Policy Act report is required. At a minimum, Henderson should conduct and publish an Environmental Impact Report which assesses the impacts of LED street lights on the environment.

The January 19, 2024 study Artificial light at night reduces earthworm activity but increases growth of invasive ragweed found that light pollution reduced earthworm surface activity by 76% and increased ragweed height growth by 104%.

The January 4, 2024 study Why flying insects gather at artificial light found that insects turn their dorsum towards the lights which provides orientation. Artificial light causes the insects to steer in a circle until death.

[6] https://www.thegleaner.com/story/news/2017/07/31/let-there-led-lighting/104160028/

The October 30, 2023 study Light Pollution in Complex Ecological Systems found that light pollution is increasing at 10% per year and adversely impacting entire ecosystems.

Energy Use

LED street lights are promoted as being energy efficient and for reducing energy use. However, these claims are discredited when examined closely.

The definition of energy efficiency is using less energy to provide the same quality of service. In other words, to make a claim of energy efficiency, there must be a baseline technology to compare to, and the new technology must provide an equivalent quality of service. In the case of street lights, the baseline service is the light emitted by High Pressure Sodium street lights. The quality of HPS street lights is quantified by the uniform illumination, gentle dispersion, amber color, and sine wave flicker. On the other hand, the quality of LED street lights is quantified by non-uniform illumination, directed energy beams, blue/white color, and square wave flicker. Due to the dramatic reduction in quality from HPS to LED light, an energy efficiency comparison between the two products cannot be made. Luminous efficacy is not equivalent to energy efficiency.

The utility company's marketing is that LED street lights reduce energy costs. The mechanism for reducing the energy costs as compared to HPS street lights is by switching to blue wavelength light from amber, using a directed energy beam instead of providing uniform illumination, and by emitting less light. As noted previously, the low quality of LED light has been documented to trigger seizures and other adverse neurological impacts, and the blue wavelength light is responsible for a significant increase in diseases.

There are multiple other ways that Henderson could reduce energy costs without switching to LED street lights:

- Institute an 11pm to dawn curfew.
- Switch to Low Pressure Sodium.
- Clean the existing HPS light fixtures to remove dirt and bugs.
- Reduce 100 watt HPS fixtures to 50 watt HPS fixtures.

Light Trespass Nuisance

LED street lights are far more intense than HPS street lights, and thus LED street light trespass can be far more invasive than HPS light trespass.

Ameresco writes, "*Ameresco mitigates light trespass through proper fixture selection and installation, low-glare optical designs, the use of diffusers, house side shields, and other techniques.*" First, the use of 3000K LED fixtures increases glare over 2100K HPS streetlights. Second, Ameresco does not provide sufficient detail in this statement that would allow Henderson to know if Ameresco consistently eliminates glare, or if Ameresco only uses mitigation measures on a case-by-case basis after a complaint is received.

Administrative and Legal Actions

On April 17, 2024, the New York State Public Service Commission heard public testimony on the impacts of LED street lights on people's lives. Individuals testified that LED street lights trigger non-epileptic and epileptic seizures and that LED street lights have caused individuals to be confined to their homes. The general theme of the testimony is that the public is begging the authorities to stop hurting them with LED street lights. The case is NYSPSC 23-E-0727.[7] The Commission is now considering the 110 submitted written public comments and the April 17, 2024 hearing testimony. A decision is expected after May 1, 2024.

On Apr 18, 2024, it was reported that Sasha Rodoy of the United Kingdom settled a lawsuit against the town of Barnett, with the Barnett City Council agreeing to switch all 4000K LED streetlights to 2200K LED streetlights to protect public health.[8]

Conclusion

The most difficult hurdle for Henderson, Nevada to overcome for the LED streetlight conversion project is 28 C.F.R. 35.151(b)(1). This federal regulation makes clear that the alteration of switching from HPS to LED streetlights requires that the streets and sidewalks be readily accessible and usable by individuals with disabilities.

[7] https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=23-E-0727

[8] https://www.dailymail.co.uk/news/article-13324045/woman-light-sensitivity-council-dim-LED-streetlights.html

Since it has already been demonstrated that LED streetlights create a discriminatory barrier that prevents full and equal access in the most integrated setting, LED streetlights prevent streets and sidewalks from being readily accessible and usable, in violation of 28 C.F.R. 35.151(b)(1). Neither the US Access Board nor the ADA National Network have published guidelines for disability access for alterations involving LED streetlights and the FDA has not published performance standards to ensure that LED streetlights do not trigger seizures, migraines, or other adverse neurological reactions that would result in discrimination. A decision by the city to ignore 28 C.F.R. 35.151(b)(1) will likely be considered deliberate indifference by a court.

Another difficult hurdle for the city to overcome is the lack of FDA performance standards for LED streetlights. The thousands of peer-reviewed studies showing that visible light radiation emitted at night is a serious health hazard cannot be justifiably ignored. The FDA is required by 21 U.S.C. 360ii to minimize the emissions of, and exposure to, electromagnetic radiation, which includes LED streetlights. The FDA has not complied with this requirement, and the FDA has not published performance standards for LED streetlights to ensure the comfort, health, safety and civil rights of the public. A decision by the city to move forward with an LED streetlight conversion, knowing that LED radiation is harmful, and knowing that this radiation has no regulations, would be negligent.

While it is difficult to definitively show that LED streetlights have increased pedestrian deaths, the data collected over the past decade clearly shows a large increase in pedestrian deaths at night, but not during the day. This suggests that LED streetlights are at least partially to blame, and Ameresco's contention that LED streetlights improve pedestrian safety cannot be substantiated.

Since reduction in energy usage to meet climate change goals can be achieved by turning off the street lights, setting a curfew, switching to Low Pressure Sodium, or switching to lower wattage HPS, the switch to hazardous and discriminatory 3000K LED streetlights cannot be justified.

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