



Town Hall 551 Hot Springs Blvd  
Pagosa Spring, CO 81147

**AGENDA**  
Dark Sky Steering Committee Meeting  
March 30, 2026 @ 5:00 PM

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**REMOTE PARTICIPATION**

Join Zoom Meeting By Computer - <https://us06web.zoom.us/j/88260715384>  
Dial by Phone - 1-719-359-4580 US - Meeting ID: 882 6071 5384

A Zoom link is made available. The Town cannot guarantee internet service or online broadcasting. Remote participation is at the risk of attendees. The meeting will continue in person regardless of the broadcast capability.

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- I. CALL MEETING TO ORDER**
  
- II. ROLL CALL**
  
- III. PUBLIC COMMENT**
  
- IV. ANNOUNCEMENTS**
  
- V. CONSENT AGENDA**
  - 1. Approval of March 16, 2026 Meeting Minutes**
  
- VI. NEW BUSINESS**
  - 1. Budget Review**
  - 2. Dark Sky Colorado Mentor Program**
  
- VII. UNFINISHED BUSINESS**
  - 1. Earth Day**
  
- VIII. REPORTS AND COMMENTS**
  
- IX. ADJOURNMENT**



## AGENDA BRIEF

**MEETING:** Dark Sky Steering Committee - 3/30/2026

**FROM:** Katelyn Tunnell

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**PROJECT:** Approval of March 16, 2026 Meeting Minutes

**ACTION:** Discussion and Action

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**PURPOSE/BACKGROUND:**

Approval of the March 16, 2026 Dark Sky Steering Committee meeting minutes.

**ATTACHMENTS:**

1. Dark Sky Steering Committee Minutes

**RECOMMENDATIONS:**

1. Motion to approve the March 16, 2026 Dark Sky Steering Committee meeting minutes.
2. Motion to deny approval of the March 16, 2026 Dark Sky Steering Committee meeting minutes.
3. Motion to provide direction to staff regarding revisions to the March 16, 2026 meeting minutes.



Town Hall 551 Hot Springs Blvd  
Pagosa Spring, CO 81147

**MINUTES**  
Dark Sky Steering Committee Meeting  
March 16, 2026 @ 5:00 PM

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A meeting of the Dark Sky Steering Committee was called to order on March 16, 2026 at 5:00 PM in the Town Hall 551 Hot Springs Blvd.

**MEMBERS PRESENT:** Member Crawford, Member Hasenbuhler, Member Laterza, Member McCracken

**MEMBERS ABSENT:** Member Juneau

**I. CALL MEETING TO ORDER**

at 5:04 p.m.

**II. ROLL CALL**

**III. PUBLIC COMMENT**

None.

**IV. ANNOUNCEMENTS**

None.

**V. CONSENT AGENDA**

None.

**VI. NEW BUSINESS**

**1. Election of Chair and Vice-Chair for 2026**

Member Laterza moved to elect Member Hasenbuhler as the Dark Sky Steering Committee Chair and Member Crawford as the Dark Sky Steering Committee Vice-Chair for 2026, Member McCracken seconded. Motion Passed.

**2. Earth Day Celebration**

Manager O'Dell presented the agenda item and informed the Committee of the upcoming Earth Day celebration in April. Member Crawford asked whether attendance would be required for the full day. Manager O'Dell responded that members may attend in shifts, noting that he plans to be present for the entire event. Member Laterza stated she would also be there all day. Member Hasenbuhler indicated he may be out of town but will attend if available. Member McCracken shared that he would be working but would likely assist with event setup. Member Laterza asked whether materials for the event had been prepared. Manager O'Dell suggested that the Committee establish its next meeting date and use that time to further discuss event planning. Member Laterza emphasized the need to allow adequate time to prepare printed and laminated materials for the Committee's table. Manager O'Dell noted that a table can be borrowed from the Town of Pagosa Springs, and a 6 foot banner that Member Laterza recently purchased through Canva. Member Hasenbuhler recommended utilizing DarkSky International tri-fold handouts for this and future outreach events. Member Laterza added that DarkSky International provides additional public outreach materials, including several 8.5x11 flyers and poster-sized printouts. Manager O'Dell asked Member Laterza if she could bring her models. Member Laterza agreed but noted that they may not function well outdoors and may be better suited for use at the Visitor Center or other indoor events.

### **3. International Dark Sky Week Proclamation**

Manager O'Dell presented the agenda item.

Member Laterza moved to approve the International Dark Sky Proclamation. Member Crawford seconded.

Motion Passed.

### **4. Discussion of Section 6.11 of the Land Use and Development Code**

Senior Planner Tunnell presented the staff report. Member Hasenbuhler discussed concerns related to lighting, including timers, lights remaining on overnight, and proper shielding. He recommended reviewing the County's standards and noted that code updates may be necessary. Member Laterza asked what is currently being enforced and when enforcement occurs. Senior Planner Tunnell explained that the Town reviews new business licenses, as well as new residential and commercial development, prior to issuance of a Certificate of Occupancy or business license. Member Hasenbuhler suggested that funding opportunities should be considered to support compliance efforts, rather than taking a strictly enforcement-based approach. Manager O'Dell responded that the adopted budget from the Town of Pagosa Springs will be brought forward at the next meeting.

### **5. International Dark Sky Place Application Process**

Manager O'Dell presented the staff report. Member Hasenbuhler noted that Durango has a light measurement tool that the Committee could potentially borrow. Member Crawford shared that there are devices available, typically costing around \$300–\$400, that can continuously measure light levels. She also noted that measurements should be taken during the darkest periods of the month, such as during a new moon. Member Laterza shared that the June 20 "Bio Blast" event is upcoming and expressed interest in having a Committee table at the event. She also noted that DarkSky International has provided a sample spreadsheet for conducting a Town-owned lighting inventory.

**VII. UNFINISHED BUSINESS**

**VIII. REPORTS AND COMMENTS**

Manager O'Dell stated that he will bring a proposed budget to the next meeting and recommended a meeting schedule. The Committee agreed to hold the next meeting on March 30 at 5:00 p.m. Member Hasenbuhler recommended including the following items on the next agenda: an International Dark Sky Week proclamation, budget review, coordination with Dark Sky Colorado, and Earth Day planning. Manager O'Dell asked whether Aaron Watson should be invited to attend the next meeting, noting that the Town has a limited allocation of 15 hours for his assistance, which expires in May. Manager O'Dell will reach out to Aaron Watson to coordinate attendance for the March 30 meeting. Member Laterza requested that task management be included as a discussion item. Manager O'Dell recommended addressing this under the Reports and Comments section of the agenda.

**IX. ADJOURNMENT**

at 6:07 p.m.



## AGENDA BRIEF

**MEETING:** Dark Sky Steering Committee - 3/30/2026

**FROM:** Owen O'Dell

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**PROJECT:** Budget Review  
**ACTION:** Information Only

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**PURPOSE/BACKGROUND:**

Review of budgetary availability for the Dark Sky Steering Committee. The committee has funds available in two separate lines: 10-64-796 and 51-62-561. While each line appears to have an abundance of funds, it is not all intended to be allocated to the Dark Sky Steering Committee or IDA Certification. Staff will explain the obtainable funds and what they can be allocated towards.

TOWN OF PAGOSA SPRINGS  
EXPENDITURES WITH COMPARISON TO BUDGET  
FOR THE 1 MONTHS ENDING JANUARY 01, 2026

CAPITAL IMPROVEMENT FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>COMM. DEVEL. ADMIN.-CAPITAL</u>					
51-62-561	.00	.00	10,000.00	10,000.00	.0
51-62-761	.00	.00	150.00	150.00	.0
TOTAL COMM. DEVEL. ADMIN.-CAPITAL	.00	.00	10,150.00	10,150.00	.0
<u>PROJECTS-CAPITAL</u>					
51-66-704	.00	.00	1,000.00	1,000.00	.0
51-66-753	.00	.00	300.00	300.00	.0
51-66-754	.00	.00	15,000.00	15,000.00	.0
51-66-755	.00	.00	15,000.00	15,000.00	.0
TOTAL PROJECTS-CAPITAL	.00	.00	31,300.00	31,300.00	.0
<u>ADMIN. SERVICES ADMIN-CAPITAL</u>					
51-80-583	.00	.00	33,200.00	33,200.00	.0
51-80-584	.00	.00	300.00	300.00	.0
51-80-761	.00	.00	150.00	150.00	.0
51-80-771	.00	.00	110,000.00	110,000.00	.0
51-80-944	.00	.00	521.00	521.00	.0
TOTAL ADMIN. SERVICES ADMIN-CAPITAL	.00	.00	144,171.00	144,171.00	.0

TOWN OF PAGOSA SPRINGS  
EXPENDITURES WITH COMPARISON TO BUDGET  
FOR THE 1 MONTHS ENDING JANUARY 01, 2026

GENERAL FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>PLANNING</u>					
10-64-401 SALARIES	.00	.00	223,955.00	223,955.00	.0
10-64-411 FICA	.00	.00	17,133.00	17,133.00	.0
10-64-412 EMPLOYEE INSURANCE	.00	.00	71,792.00	71,792.00	.0
10-64-413 RETIREMENT	.00	.00	22,395.00	22,395.00	.0
10-64-414 PHONE STIPEND	.00	.00	480.00	480.00	.0
10-64-423 WORKERS COMPENSATION INSURANCE	.00	.00	2,539.00	2,539.00	.0
10-64-501 OFFICE SUPPLIES	.00	.00	600.00	600.00	.0
10-64-504 POSTAGE/SHIPPING	.00	.00	750.00	750.00	.0
10-64-505 COPY/PRINTING	.00	.00	500.00	500.00	.0
10-64-561 COMMUNITY ENGAGEMENT/COMMUNITY	.00	.00	400.00	400.00	.0
10-64-583 COMPUTER/IT EQUIPMENT	.00	.00	150.00	150.00	.0
10-64-584 SOFTWARE SUBSCRIPTIONS	.00	.00	9,819.00	9,819.00	.0
10-64-621 TELEPHONE SERVICE-UTILITY	.00	.00	984.00	984.00	.0
10-64-704 CONTRACTED SERVICES (OTHER PRO	.00	.00	1,850.00	1,850.00	.0
10-64-705 IT SERVICES	.00	.00	8,051.00	8,051.00	.0
10-64-711 TRAVEL-TRANSPORTATION	.00	.00	1,400.00	1,400.00	.0
10-64-712 TRAVEL-MEALS	.00	.00	1,225.00	1,225.00	.0
10-64-713 TRAVEL-LODGING	.00	.00	4,000.00	4,000.00	.0
10-64-722 MEETING-REGISTRATION	.00	.00	2,200.00	2,200.00	.0
10-64-743 RECORDING FEES	.00	.00	1,400.00	1,400.00	.0
10-64-751 BOOKS & SUBSCRIPTIONS	.00	.00	335.00	335.00	.0
10-64-791 ADVERTISING/PUBLIC NOTIFICATIO	.00	.00	1,000.00	1,000.00	.0
10-64-792 DUES & MEMBERSHIPS	.00	.00	1,200.00	1,200.00	.0
10-64-793 TRAINING & SCHOOLS	.00	.00	600.00	600.00	.0
10-64-794 TEAM BUILDING	.00	.00	200.00	200.00	.0
10-64-796 BOARD EXPENSES/VOLUNTEER APPRE	.00	.00	18,138.00	18,138.00	.0
TOTAL PLANNING	.00	.00	393,096.00	393,096.00	.0



## AGENDA BRIEF

**MEETING:** Dark Sky Steering Committee - 3/30/2026

**FROM:** Owen O'Dell

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**PROJECT:** Dark Sky Colorado Mentor Program

**ACTION:** Information Only

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**PURPOSE/BACKGROUND:**

Introductory meeting with Aaron Watson of Dark Sky Colorado to discuss the mentorship program.



## AGENDA BRIEF

**MEETING:** Dark Sky Steering Committee - 3/30/2026

**FROM:** Katelyn Tunnell

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**PROJECT:** Earth Day  
**ACTION:** Discussion and Action

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### **PURPOSE/BACKGROUND:**

Earth Day will be held at the Geothermal Greenhouse Partnership (GGP) on April 26, 2026, from 10:00 a.m. to 3:00 p.m. Volunteers are encouraged to arrive at 9:00 a.m. to help with booth setup. The Dark Sky Steering Committee is planning to participate in the event with an informational booth focused on public outreach and education. This outreach will also help fulfill an International Dark Sky Places (IDA) application requirement.

Booth registration is \$15. Staff is seeking confirmation from the Committee that the Town will cover this cost.

The Committee should discuss volunteer availability and scheduling to ensure the booth is staffed throughout the event. Staff will provide the booth materials, including a banner, tent, and table(s). Thirteen handouts from DarkSky International have also been included for Committee review, and direction is requested on which materials should be used.

Additional discussion may include outreach materials and general booth setup.

### **ATTACHMENTS:**

1. Light Pollution Factsheets - 1 Page
2. Five Principles Checklist - 2 Pages
3. Cultural Heritage and Light Pollution - 1 Page
4. Protect the Night - 2 Pages
5. Factsheets - Light Pollution Harming Our Health - 5 Pages
6. Five Principles Checklist - 1 Page
7. Five Principles Postcard - 1 Page
8. Human Health and Light Pollution - 1 Page
9. Protect the Night Brochure - 1 Page
10. Resources and Light Pollution - 1 Page
11. Safety and Light Pollution - 1 Page
12. Sample Letter to Your Neighbor

13. Wildlife and Light Pollution - 1 Page

**RECOMMENDATIONS:**

1. Motion to approve expenditure of \$15 for registration in the Pagosa Springs Earth Day celebration. This registration will support public outreach efforts and fulfill an International Dark Sky Places (IDA) application requirement.
2. Motion to deny expenditure of \$15 for registration in the Pagosa Springs Earth Day celebration.
3. Motion to provide direction to staff.

# Find DarkSky resources in your language

Scan the QR code to access the **#lightpollution Factsheets** that has been translated by Advocates around the world.



Free.

Downloadable.

Ready to use.

Protect the night in every language.



DarkSky

# Five principles for responsible outdoor lighting

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Before adding another light,  
check to see if you're protecting  
the night.



# Do your outdoor lights protect the night?

Check each outdoor light fixture around your home and give it a score.



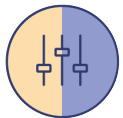
## Is it useful?

All light should have a clear purpose. Use lighting only when and where it is needed.



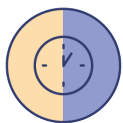
## Is it targeted?

Shield and aim your light so it only falls downward and where it is useful.



## Is it low-level?

Light should be no brighter than necessary to save money and reduce glare.



## Is it controlled?

Lighting should only be on when needed. Use timers and motion sensors.



## Is it warm-colored?

Warm-colored light causes less skyglow. Use amber-toned lighting when possible.



Score:     / 5

Learn more about protecting the night by visiting [www.darksky.org](http://www.darksky.org)



**DarkSky**

# Preserve a shared cultural heritage



Learn more,  
visit [darksky.org](https://darksky.org)

## The stars are disappearing

Our ancestors experienced a night sky that inspired science, religion, philosophy, art, and literature. Now, millions of children across the globe will never know the wonder of seeing a star-filled night sky.



Over 80% of the world's population lives beneath light-polluted skies. 8 out of 10 children will grow up never seeing the Milky Way.



Light pollution continues to grow at an alarming rate, nearly 10% annually worldwide, in both urban and rural areas.



Looking up at a star-filled night sky sparks wonder and awe. Research shows that awe increases feelings of connectedness and belonging, improving ones overall health and well-being.

## Preserve our cosmic connection



Protect the nighttime environment around your home and community by following the Five Principles for Responsible Outdoor Lighting.

# Light pollution is reversible!

Unlike other types of pollution that are very difficult to remove from the environment, light pollution can be solved at the speed of light. Solutions deliver immediate and lasting results.



## SUCCESS STORY

In 2018, the City of Tucson, Arizona, U.S.A. (population 500,000) upgraded its streetlights. By doing so, it saved \$2.2 million per year in energy costs and reduced light pollution by 7%.

## WE'RE MAKING AN IMPACT

1,000+

More than 1,000 DarkSky Approved lighting fixtures are available on the market.

200+

More than 200 International Dark Sky Places have been certified, protecting over 160,000 sq km of dark places around the globe.



2,000+

DarkSky supports more than 2,000 volunteer Advocates in 49 countries.

70+

DarkSky supports more than 70 chapters in 24 countries.

## The stars are disappearing.

Light pollution continues to grow at an alarming rate, harming our health, damaging the environment, and diminishing our view of the stars. DarkSky International has a plan to save the night, but we need your help.

## Join the movement and help save the night.



DarkSky is a global community working together to save the night. Sign up today for DarkSky e-news updates to learn more.



Photo credit: Bin Chen



**DarkSky**  
INTERNATIONAL

DarkSky International is a U.S.-based 501(c)(3) nonprofit that supports a global community and movement dedicated to preserving and protecting the natural nighttime environment.

DarkSky International  
5049 East Broadway Blvd #105  
Tucson AZ 85711  
USA

[www.DarkSky.org](http://www.DarkSky.org)  
+1-520-293-3198



# Protect the night

Preserving and restoring the nighttime environment is more urgent than ever.



# What is light pollution?

Light pollution is the human-made alteration of outdoor light levels from those occurring naturally. When we over-light, fail to use timers and sensors, or use the wrong color of light, we negatively affect many parts of our world.



*Learn more about light pollution* ↷

## Light pollution...

### Destroys critical wildlife habitat



Plants and animals depend on Earth's daily light and dark cycle to govern life-sustaining behaviors. Research shows that artificial light at night has adverse and even deadly effects on many species.

### Decreases safety and security



There is no clear scientific evidence that increased outdoor lighting deters crime. In fact, glare from unshielded streetlights can decrease personal safety, contributing to both crime and accidents.

### Wastes energy and money



Most outdoor lighting is wasted. This energy waste increases greenhouse gas emissions contributing to climate change and wastes billions of dollars each year.

### Robs us of our night sky heritage



Our ancestors experienced a night sky that inspired science, religion, philosophy, art, and literature. Now, millions of children across the globe will never know the wonder of seeing the Milky Way.

### Harms human health



Studies indicate that artificial light at night negatively affects human health by increasing our risks for obesity, sleep disorders, depression, diabetes, breast cancer, and more.

### Inhibits scientific research



Satellites in low Earth orbit create visible trails in the night sky, inhibiting astronomical research and jeopardizing NASA's early warning system for asteroid collisions.

# What can I do?

DarkSky's Five Principles for Responsible Outdoor Lighting can help you make smart choices to reduce light pollution. Do your lights protect the night?



### Is it useful?

All light should have a clear purpose. Use lighting only when and where it is needed.



### Is it targeted?

Shield and aim your light so it only falls downward and where it is useful.



### Is it low-level?

Light should be no brighter than necessary to save money and reduce glare.



### Is it controlled?

Lighting should only be on when needed. Use timers and motion sensors.



### Is it warm-colored?

Warm-colored light causes less skyglow. Use amber-toned lighting whenever possible.

## Learn more

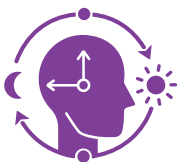


Visit [darksky.org](https://darksky.org) to learn more about the importance of the night and what you can do to reduce light pollution around your home and community.

# Light pollution harms our health and wellbeing.



Over the past 100 years, humans have transformed the night, erasing the natural darkness with which we evolved. While artificial light at night is crucial to our modern world, it comes at a cost. Increasing scientific research indicates that artificial light at night has detrimental effects on human health and well-being.



## Circadian rhythm disruption

Largely influenced by the light and dark, our circadian rhythm is our body's natural 24-hour regulating clock. Circadian disruption occurs when our internal clock is out of sync with the day-night cycle. Circadian disruption has been linked to an increased risk of obesity, diabetes, mood disorders, reproductive problems, and cancers.



## Decreased melatonin production

While we are still learning about the relationship between artificial light and human health, we know that exposure to light at night—even at dim levels—can suppress the body's production of melatonin, a hormone that regulates our sleep-wake cycle, metabolism, and immune system.



## Glare impairs vision

Irresponsible outdoor lighting at night can increase dangers rather than safety. Overly bright and poorly shielded lighting creates blinding glare, impairing vision, leading to dangerous missteps and accidents. Blue light, often used in newer LED streetlights, is more likely to create dangerous glare.

## WHAT CAN I DO?



## Live a healthy life in a world filled with artificial light.

- Use fully shielded outdoor light fixtures to minimize the light that streams into your home.
- Use indoor light bulbs that emit warm white light with a color temp. of 3000K or lower.
- When it's time for bed, keep your bedroom dark by using blackout curtains and covering all light sources such as clock radios and charging stations.
- If you need a nightlight, use one with dim red or amber light. Red light is least likely to be disruptive.
- Try not to use devices with screens 30-minutes prior to sleeping. If you must use devices at night, install a color temperature app that reduces blue light levels.
- Work with your neighbors and local government to reduce light pollution in your community.



**DarkSky**



Learn more about light pollution and human health.

[darksky.org/resources/what-is-light-pollution/effects/human-health](https://darksky.org/resources/what-is-light-pollution/effects/human-health)

# Light pollution destroys critical wildlife habitat.



Plants and animals depend on natural light cycles to govern life-sustaining behaviors such as reproduction, nourishment, sleep, and protection from predators. Scientific evidence suggests that artificial light at night has deadly effects on many creatures, contributing to the decline of biodiversity worldwide.



## Migratory birds

Artificial lights can cause migrating birds to wander off course towards dangerous nighttime landscapes and cities. Millions of birds die colliding with needlessly illuminated buildings and towers every year.



## Sea turtles

Hatchling sea turtles find the sea by detecting the bright horizon over the ocean. Artificial lights draw them away from the ocean. In Florida alone, millions of hatchlings die this way every year.



## And many more...

We are just starting to understand the devastating effects of artificial light on habitats. Every year, new research adds even more wildlife to the list of affected animals, including:

- Hummingbirds
- Wallabies
- Little penguin
- Zebrafish
- Sweat bees
- Songbirds
- Peahens
- Bats
- Owls
- Mice
- Seabirds
- Monarchs
- Atlantic salmon
- Zooplankton
- European perch
- Insects
- Geckos
- Fireflies

## WHAT CAN I DO?



## Protect wildlife through sensitive lighting choices.

- Get to know your neighborhood at night. It's hard to protect what you're not familiar with.
- Use only fully shielded, fixtures for all outdoor lighting, so lights shine down, not up.
- Use only the right amount of light needed. Too much light is wasteful and harms wildlife.
- Install timers and dimmer switches and turn off lights when not in use. If you must have security lighting, use motion sensors.
- Turn off lights in office buildings and homes when not in use.
- Use only lighting with a color temperature of 3000 and below to reduce the blue cool light that is more harmful to wildlife.
- Work with your neighbors and local governments to ensure outdoor lighting isn't harming the wildlife in your area.



**DarkSky**



Learn more about  
light pollution and  
wildlife habitats.

[darksky.org/resources/what-is-light-pollution/effects/wildlife-ecosystems](https://darksky.org/resources/what-is-light-pollution/effects/wildlife-ecosystems)

# Bright lights do not equate to greater safety.



Glare from unshielded lighting reduces safety.

Lighting up the nighttime environment does not necessarily increase safety and security. Effective lighting that helps people be safe—not just feel safe—is a win-win situation for everyone.

## Busting the myth of bright lights and safety.



### At home: Poor lighting can create a false sense of security.

Poorly designed outdoor lighting can backfire on safety. Bright and misdirected lights create shadows for criminals to hide, and some crimes, like vandalism, thrive in well-lit areas. Floodlights, for example, may highlight potential targets.



### In town: Light for light's sake doesn't equal increased safety.

While towns, cities, and businesses aim to enhance safety with lighting, poorly aimed and inadequately shielded lights can attract criminals. A Chicago study identified a correlation between increased crime and overly bright alleyways.



### On the road: bad lighting creates unsafe driving conditions.

Inadequate roadway lighting causes glare, contributing to accidents, especially affecting older individuals. A 2015 Journal of Epidemiology and Community Health study revealed that streetlights don't effectively prevent accidents or crime but they do cost a lot of money.

## WHAT CAN I DO?



## Make your home safer with **smart** lighting choices.

- Use fully shielded, dark-sky friendly fixtures so light shines where it's needed and does not create glare or extreme contrasts.
- Only use lights when and where needed. Install timers and dimmer switches, and turn off lights when not in use. If you must have security lighting, use motion sensors.
- Use the right amount of light. Too much light is wasteful and impairs vision.
- Use long-wavelength lights with a red or yellow tint to minimize negative health effects.
- Work with your local government and community to improve lighting conditions along roadways and shared spaces.
- Cities and towns can restrict the use of bright signs and flashing lights near roadways.



**DarkSky**



Learn more about  
light pollution,  
crime, and safety.

[darksky.org/resources/what-is-light-pollution/effects/safety](https://darksky.org/resources/what-is-light-pollution/effects/safety)

# Light pollution wastes money and resources.



Lighting levels that are higher than necessary and light that shines when and where it's not needed is wasteful. Wasting energy on bad lighting design has huge economic and environmental consequences.

## Tracking the cost of light pollution.



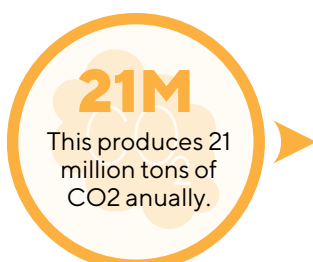
### Light pollution wastes billions of dollars.

DarkSky estimates that 30 percent of all outdoor lighting in the U.S. is wasted, mostly due to unshielded or excessively bright lights. This adds up to \$3.3 billion dollars wasted annually. Installing quality outdoor lighting could cut energy use by 60 to 70 percent, saving billions of dollars.



### Light pollution contributes to the growing climate crisis.

Artificial lighting at night and the energy required to produce it has a large carbon footprint. In the U.S. alone, unnecessary lighting produces 21 million tons of carbon dioxide each year! 875 million trees would need to be planted annually to offset this waste.



## WHAT CAN I DO?



## Maximize the efficiency of your home lighting.

- Outdoor lighting should be fully shielded and directed downward where it is needed. Fully shielded fixtures can provide the same level of illumination on the ground as unshielded ones, but with less energy and cost.
- Unnecessary indoor lighting – particularly in empty office buildings at night – should be turned off, preventing leakage of that light into the night sky.
- LEDs and compact fluorescents (CFLs) can help reduce energy use and protect the environment, but only warm-white bulbs should be used.
- Dimmers, motion sensors, and timers can help to reduce average illumination levels and save even more energy.



**DarkSky**



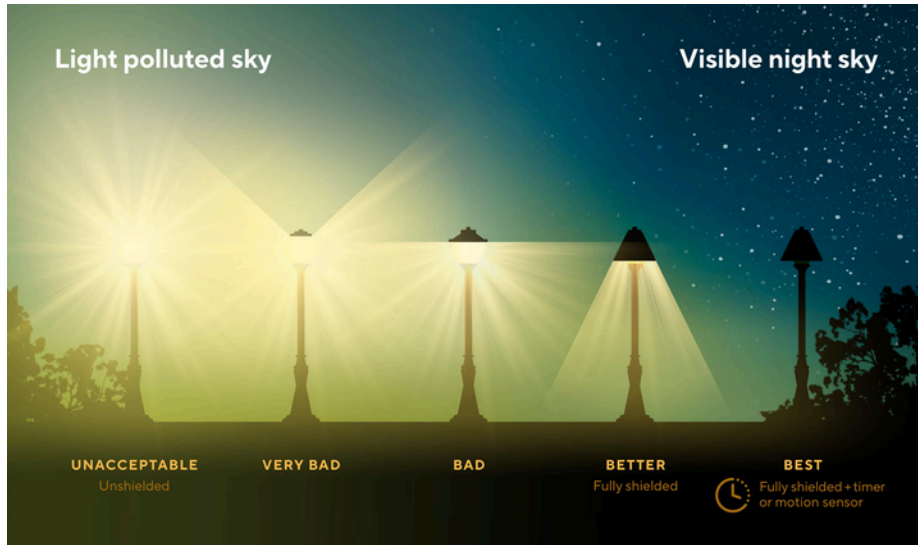
Learn more about light pollution and waste.

[darksky.org/resources/what-is-light-pollution/effects/energy-climate](https://darksky.org/resources/what-is-light-pollution/effects/energy-climate)

# What is light pollution?

Light pollution is the human-made alteration of outdoor light levels from those occurring naturally.

When we over-light, fail to use timers and sensors, or use the wrong color of light, we can negatively affect many parts of our world, including migratory birds, pollinators, sea turtles, and mammals, including humans.



## What can I do about it?

The good news is that light pollution, unlike many other forms of pollution, is reversible, and each one of us can make a difference! Just being aware that light pollution is a problem is not enough – we need to take action.

- ✓ Use only fully shielded, DarkSky Approved fixtures for all outdoor lighting, so lights shine down, not up.
- ✓ Use only the right amount of light needed. Too much light is wasteful and harms wildlife.
- ✓ Install timers and dimmer switches and turn off lights when not in use. If you must have security lighting, use motion sensors.



- ✓ Turn off lights in office buildings and homes when not in use.
- ✓ Use only lighting with a color temperature of 3000 K and below to reduce the blue cool light that's more harmful to many animal species.
- ✓ Work with your neighbors and local governments to ensure outdoor lighting isn't harming the wildlife in your area.

Learn more at [www.DarkSky.org](http://www.DarkSky.org)

## LIGHT POLLUTION FACTS

### Components of light pollution

- **Glare** — excessive brightness that causes visual discomfort
- **Sky glow** — brightening of the night sky over inhabited areas
- **Light trespass** — light falling where it is not intended or needed
- **Clutter** — bright, confusing, and excessive groupings of light sources

### Harmful effects of light pollution

A growing body of evidence links the brightening night sky directly to measurable negative impacts on:

- [Wildlife and ecosystems](#)
- [Human health](#)
- [Energy and climate change](#)
- [Crime and safety](#)
- [Night sky heritage](#)
- [Scientific research](#)

### The problem is growing

Research indicates that light pollution is increasing at a global average rate of ten percent per year.

## YOUR LOCAL CHAPTER



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Scan the QR code to access the **Five Principles for Responsible Outdoor Lighting Checklist** that has been translated by Advocates around the world.



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# Safeguard human health and wellness



Learn more,  
visit [darksky.org](https://darksky.org)

## Artificial light steals the night

While artificial light at night is crucial to our modern world, it comes at a cost. Increasing scientific research indicates that artificial light at night has detrimental effects on human health and well-being.



Circadian disruption caused by light at night has been linked to an increased risk of obesity, diabetes, mood disorders, reproductive problems, and cancers.



Exposure to excessive light at night can suppress the body's production of melatonin, a hormone that regulates our sleep-wake cycle, metabolism, and immune system.



Overly bright and poorly shielded light creates blinding glare, impairing vision, leading to dangerous missteps and accidents.

## Restore darkness for our health



Protect the nighttime environment around your home and community by following the Five Principles for Responsible Outdoor Lighting.

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# Save critical resources and money



Learn more,  
visit [darksky.org](https://darksky.org)

## The cost of light pollution

Lighting that's too bright or directed into the night sky is both harmful and wasteful. Poor lighting design wastes energy, drives up costs, and adds to the global energy and climate crisis.



DarkSky estimates that 30% of all outdoor lighting in the U.S. is wasted—mostly from unshielded or overly bright fixtures. This waste costs an estimated \$3.3 billion every year in unnecessary energy use.

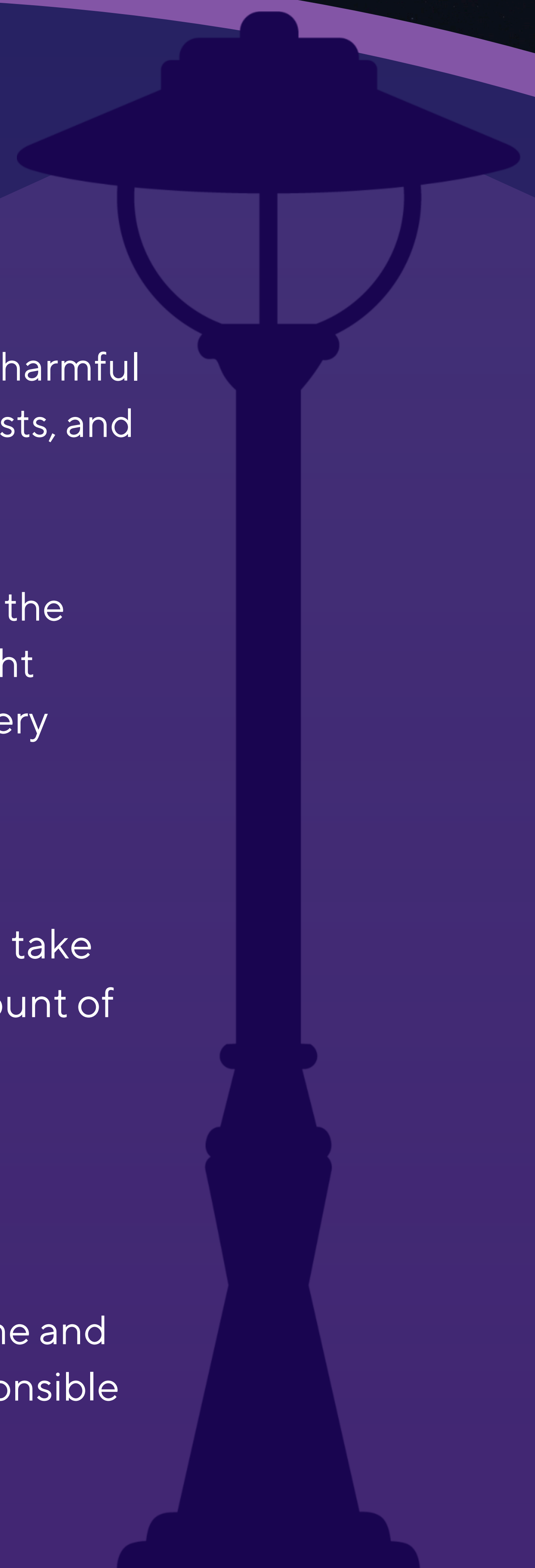


In the U.S. alone, wasted light at night produces an estimated 21 million tons of CO<sub>2</sub> each year. It would take approximately 866 million trees to absorb that amount of carbon.

## Restore darkness at home



Protect the nighttime environment around your home and community by following the Five Principles for Responsible Outdoor Lighting.





**DarkSky**

# Improve community safety and security



Learn more,  
visit [darksky.org](https://darksky.org)

## Bright lights aren't always safer

Adding overly bright or unshielded light around your home or community can have unintended consequences. Quality lighting, designed to fit the need and space, improves safety and functionality.



Overly bright and misdirected light creates harsh contrasts that reduce visibility, increase the risk of missteps, and allow potential dangers to remain hidden in the shadows.



While communities and businesses often add lighting to boost security, excessive or poorly aimed light can increase theft and vandalism by spotlighting potential targets.

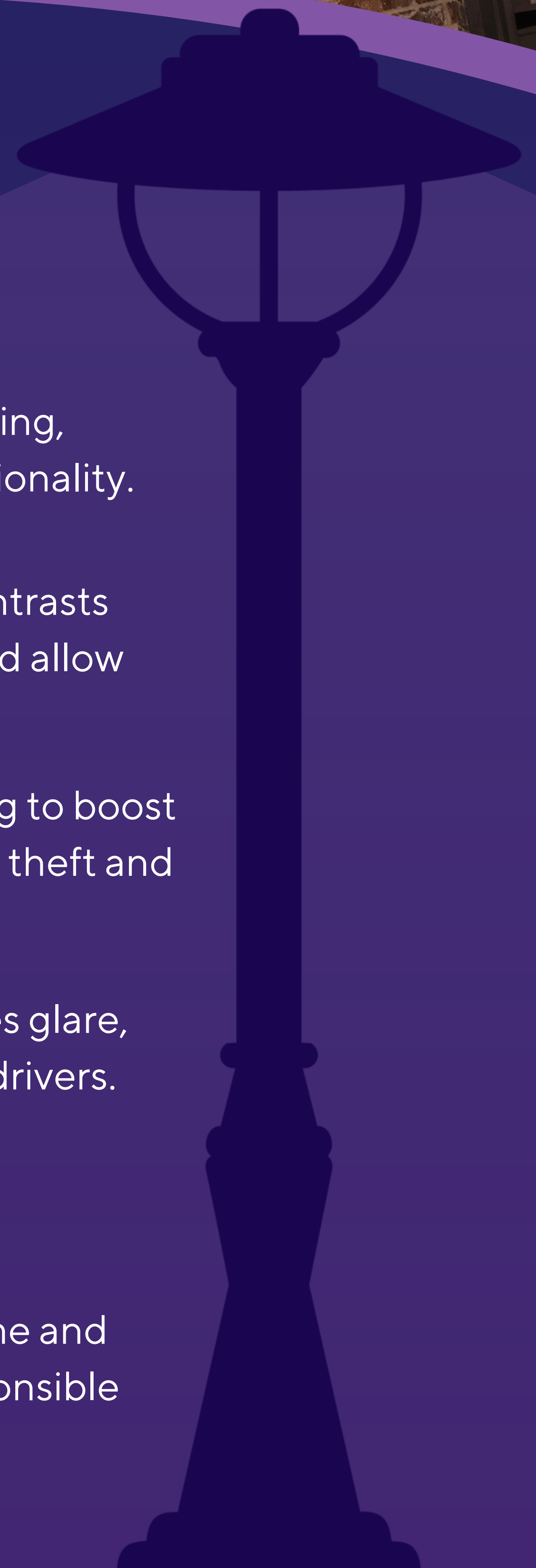


Overly bright and unshielded roadway lighting causes glare, contributing to accidents, especially affecting older drivers.

## Restore darkness at home



Protect the nighttime environment around your home and community by following the Five Principles for Responsible Outdoor Lighting.



## Sample letter to your neighbor

Dear [insert neighbor's name],

Please allow me to introduce myself, I'm your neighbor [insert your name] and I would love to talk with you about good outdoor lighting. I notice that you have installed outdoor lights on your property, and I applaud your desire to help improve our neighborhood.

However, and I certainly realize that you may be unaware of this, your lights are a bit too bright and are shining in [pick areas as they apply: our bedroom window, the backyard, into our house etc.] and interfering with our [sleep, hobbies, view of the sky, etc.]. As I mentioned, I'm sure you weren't aware of this until now, but I wanted to bring it to your attention as soon as possible so we can discuss possible remedies or solutions. Let me be clear, I am not asking you to remove the lights, but perhaps re-direct them onto the ground where they will do the most good.

In addition, we could also discuss shielding the lights so that they are even more effective. Shielding a lamp usually requires using a lower wattage bulb, which – in and of itself – is a big money saver. Shielding also reduces glare that can be dangerous and unsafe. Glare can be blinding and create harsh shadows where “bad guys” can hide. Shielded lighting provides real security, not just the illusion of security, which I think we both want for our families and friends.

There are several other ways to improve lighting, save money, and still be safe. One is using motion sensors, which alert you if someone is in your yard after dark and have the added benefit of reducing your electric bills by keeping the lights off when they're not needed. Timers are another way to save money because these devices turn off your lights when they're not needed, for example, when you retire for the night.

Thank you so much for your time and understanding. I would love to talk with you about how I can help you to improve your lighting and how it can benefit your safety, budget, and the night sky.

Sincerely,

[insert your name]



**DarkSky**

# Protect nocturnal habitats and ecosystems



Learn more,  
visit [darksky.org](https://darksky.org)



## The natural night is vanishing

Plants and animals depend on Earth's daily light and dark cycle to govern life-sustaining systems behaviors. Research shows that artificial light at night has adverse and even deadly effects on many species.



Millions of birds die each year, drawn off course or colliding with needlessly illuminated buildings at night.



Bright, unshielded lights lure hatchling sea turtles away from the safety of the ocean and into deadly city streets.



Every year, new research adds even more wildlife to the list of affected animals, including butterflies, moths, fireflies, bats, bees, hummingbirds, clownfish, coral, and many more.

## Protect nocturnal habitats



Protect the nighttime environment around your home and community by following the Five Principles for Responsible Outdoor Lighting.

