

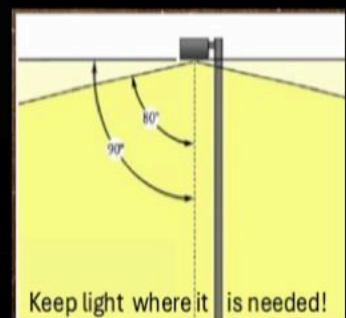
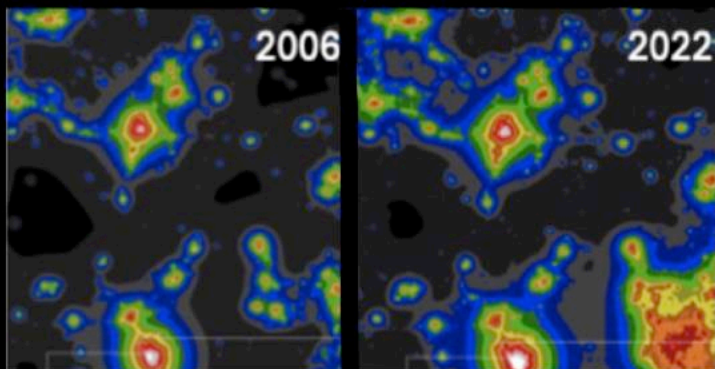
PROTECTING A VALUABLE NEW MEXICO RESOURCE

our NIGHT SKIES

SB34 : Updating the 1999 Night Sky Protection Act



We are losing our skies - but we can save them!



Background and motivation

In 1999, New Mexico adopted the Night Sky Protection Act to “to regulate outdoor night lighting fixtures to preserve and enhance the state’s dark sky while promoting safety, conserving energy and preserving the environment.” The NSPA seeks these goals principally by requiring the shielding of lighting fixtures to direct their output downward.

However, the Act is not curtailing the growth of light pollution. On top of this, the value of protecting the night has become increasingly clear – for human health, for science and culture, for plants and animals, for tourism, and for astrobusiness.

To become effective, the Act must reflect current technology (especially the development and widespread adoption of LEDs) and incorporate the current best lighting principles and practices. These principles and practices protect the night while providing the illumination necessary for nighttime safety and security, for pedestrian and vehicular travel and, for work and play.

Proposed modifications to NM Night Sky Protection Act

SB34 proposes to modify the existing Night Sky Protection Act in a small, but impactful, way: **we will require all new lighting to be shielded to the current standard recommended by DarkSky International** (at least 95% of the total light from a luminaire to be directed below an angle of 10 degrees from a horizontal plane, see diagram below), with a few common sense exceptions:

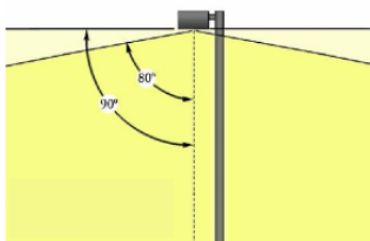
- we establish a partial exception for brighter lights near the ground that are illuminating upward: these must be directed at something and not at the sky
- we establish an exception for fainter lights near the ground
- we establish an exception for strings of small lights and temporary holiday lighting.
- we maintain an exemption for highway lighting signs
- we maintain an exemption for digital electronic billboards
- we add a total exemption for temporary lighting associated with film or television production, construction, or emergency services.

In addition, **SB34 removes exemptions:**

- for new noncompliant lights that are turned off after 11:00.
- for new traditional advertising signs
- for new lights at farms, ranches, dairies, feedlots or industrial, mining or oil and gas facilities, but delay the implementation of the shielding requirement for these facilities until 2027, to allow implementations currently in progress to proceed without modification.

These exemptions are removed because responsible lighting can still ensure both safety and effectiveness.

There are no requirements for modification of existing lights or their operation until they are replaced.



This diagram demonstrates the small revision to the shielding definition: light from fixtures will be required to fall in the darker yellow zone with only a minimal contribution in the lighter yellow zone. This prevents light from travelling large distances horizontally where it can scatter up into the sky. It also provides for greater safety by minimizing glare and saves energy and money.



FREQUENTLY ASKED QUESTIONS :

- We already have the Night Sky Protection Act that requires shielding. Why do we need a revision?

Shielding that prevents light from directly going skywards is literally only half the problem. Artificial light at night below horizontal can still cause glare and light trespass, not addressed in the 1999 law. Glare interferes with human safety and night vision, light trespass is a nuisance. The revision restricts light to be predominantly directed within 80 degrees of straight down (nadir) instead of 90. This requirement is what has been recommended by the internationally recognized DarkSky International, who have worked with lighting industry experts to develop it.

Furthermore, the original NSPA allowed for unshielded lighting for low wattage lights, but since the technology has changed to LEDs, low wattage now can still be very bright! Lumens is the appropriate unit to specify brightness, so we have incorporated that and been more specific about what is allowed.

Finally, it is now recognized that responsible lighting can be as safe as lighting that allows light up into the sky where it is not needed, so we are proposing to remove exemptions that were previously included because of safety concerns.

- Will anyone be required to change existing lighting at any time?

No. Only new lighting is subject to the revised NSPA. We hope that people will choose to replace existing lighting because it makes sense to do so from the perspective of cost and better lighting, but we do not require it.

- If existing lighting is not required to change, how are we improving anything?

All new lighting is required to be shielded, so we keep the situation from getting worse. Light pollution has been increasing in New Mexico, and we need to stop the bleeding!

- How will the NSPA be enforced?

The enforcement mechanism is unchanged: the construction industries division of the regulation and licensing department shall enforce the Night Sky Protection Act as it pertains to public buildings subject to permit and inspection under the Construction Industries Licensing Act and each political subdivision of the state shall fully enforce the provisions of the Responsible Outdoor Lighting and Night Sky Protection Act.

Enforcement is undoubtedly a challenging problem, and one we need to continue to work on through education about the issue. Having legislation on the books is critical in the endeavor, both to be able to point to a legal requirement, and also to demonstrate the commitment that

our state has to preserving a resource that is important to us culturally and economically, among other things.

- Why are we removing the exemption for worker safety at farms, ranches, dairies, feedlots or industrial, mining or oil and gas facilities?

First, note that the exemption for existing lighting stands; no modifications to existing lighting or hours of operation for these facilities are required.

DarkSky International and the Illuminating Engineering Society have established standards for worker safety that can be achieved using responsible lighting, as implemented in the revised NSPA. Responsible lighting can focus on safety and can be safer than non-compliant lighting. Some sites, e.g., some oil and gas facilities in Texas, have installed responsible lighting and report that worker satisfaction is higher in that they feel safer.

The largest growth of light pollution in New Mexico has occurred in the NW and SE portions of the state as a result of wasteful lighting at oil and gas facilities. Moving forward, this growth can and should be stopped; removing the exemption only means that new lighting needs to be compliant. Note that facilities on BLM land are already required to install shielded lighting.

For new lighting, we extend the start date of the new shielding requirement to January 1, 2027 so that any facilities currently in planning or construction do not need to be changed.

- What about lighting at recreational facilities?

As above, existing lighting is grandfathered in, and no modifications are required.

For new facilities, DarkSky International has a program that demonstrates that compliant lighting at recreational facilities is feasible at comparable cost.

- Why are we removing the exemption for highway advertising?

Highway advertising signs can contribute significantly to light pollution especially in some of the more rural areas in the state. Many advertising signs are lit from below, which can lead to increased light pollution. Fortunately, these signs can be equally well lit from above with shielded lighting, so it is possible to both have highway advertising and protect our skies at the same time!

We maintain an exemption for electronic digital billboards which currently probably cannot meet the shielding requirement. The operation of these is regulated at some level by existing state code.



DarkSky
NEW MEXICO
CHAPTER

The Values of Responsible Lighting in New Mexico

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Why should we value responsible lighting and dark skies in New Mexico?

A valuable natural resource : Over the past 150 years as widespread use of artificial light has increased, a dark night sky, once the domain of many, has now become the domain of a few. New Mexico has a valuable natural resource in its dark skies that helps define our uniqueness and sense of place. We should not let this slip away!!

Economic impact : Dark skies provide positive economic impact in New Mexico in multiple ways. Astrotourism is increasing in the state, e.g., New Mexico True has a New Mexico Dark Skies theme that focuses on several formally designated Dark Sky Places. There are several residential communities across the state that attract new homeowners from out of state. There are also multiple telescope-hosting small businesses that provide locations for people from around the world to put their telescopes, and the owners will occasionally visit. NM research universities have active observatories that attract students and federal funding; several federal facilities in New Mexico also have observatories. There are a number of amateur astronomy clubs across the state and there is at least one large star party that attracts visitors from out of state.

Worker Safety : It has been recognized that responsible lighting improves worker safety. Reducing glare (direct view of light sources) allows for better visibility. More light is not necessarily safer; putting light where it is needed is.

Security : Similarly, implementing responsible lighting in urban settings can increase security. Glare makes it harder to see intruders or other hazards. Putting security lighting on timers and motion sensors allows easier identification of intruders.

National security : National labs in New Mexico, e.g. Starfire Optical Range, are involved in satellite tracking and monitoring, efforts that are affected by light pollution.

Human health : Excess light impairs sleep, which may have long-term health impacts. Improved roadway lighting to reduce glare can decrease the frequency of accidents involving both pedestrians and vehicles.

Ecological benefits : Multiple species are adversely affected by excess artificial light at night. In particular, 60% of pollinators, on whom agriculture depends, are negatively affected. A large fraction of migratory birds travel at night and can be misled by artificial light; the Rio Grande corridor is a major bird migration route.

Energy and money savings : Putting light only where it is needed saves energy and saves money.

Respecting property rights : Some property owners are severely affected by light trespass from adjacent private or public properties. Property owners should have the right to light their property as they see fit, but also be mindful of neighboring property owner rights by restricting their artificial light to prevent it from extending beyond their property line.

Human appreciation : For generations, humans have appreciated the night sky. The night sky is the most ancient of all natural beauties. Viewing the stars and Milky Way in an unspoiled dark sky stokes imagination, creativity, wonder, serenity and an awesome sense of connection to something far beyond our daily experience. The ability to do so is declining rapidly: for example, it's estimated that only 20% of the US population is able to see the Milky Way. New Mexico has a great resource in its dark skies, a heritage that we should preserve and pass on to future generations,

A cultural resource : The original Night Sky Protection Act arose when the New Mexico Heritage Preservation Alliance declared the night sky as a threatened cultural resource, one we all share: One Big Sky. The night sky provides a connection across all cultures, Indigenous, Spanish and other European ancestry. Oral traditions and storytelling in cultures worldwide are being lost to light pollution.

Scientific study : The three research universities in the state all have active astronomy programs. Our ability to learn about the Universe, which may have implications that we cannot fully foresee, depends on dark skies to see fainter objects. Loss of natural darkness across the US has led to many advanced observatory projects being located outside the continental US. Dark skies help to keep New Mexico competitive.

Amateur astronomy : There are many amateur astronomers who take great satisfaction in looking at the night sky. Some produce artistic work, others are involved in scientific studies, and others spend significant time sharing their enthusiasm with the public.

How can we implement responsible lighting and protect dark skies in New Mexico?

DarkSky International and the Illuminating Engineering Society have developed five simple principles for responsible outdoor lighting:

1. **Useful : Use light only if it is needed.** All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.
2. **Targeted : Direct light so it falls only where it is needed.** Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.
3. **Low level : Light should be no brighter than necessary.** Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.
4. **Controlled : Use light only when it is needed.** Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.
5. **Warm colored : Use warmer-color lights where possible.** Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.

If we implement these relatively simple principles, we enhance safety and security, save money and energy, help humans and protect wildlife, preserve cultural and aesthetic values, enable scientific studies, and help to attract people to New Mexico – a winning combination!

SENATE BILL

57TH LEGISLATURE - STATE OF NEW MEXICO - FIRST SESSION, 2025

INTRODUCED BY

DISCUSSION DRAFT

AN ACT

RELATING TO THE NIGHT SKY; REVISING THE REQUIREMENTS FOR
SHIELDING OUTDOOR LIGHT FIXTURES; ADDING EXEMPTIONS FOR ROADWAY
NAVIGATION AND SAFETY SIGNS ON INTERSTATES AND FEDERAL PRIMARY
HIGHWAYS AND TEMPORARY OUTDOOR LIGHT FIXTURES NECESSARY FOR
CONSTRUCTION, EMERGENCY SERVICES OR FILM OR TELEVISION
PRODUCTION; REMOVING THE EXEMPTION FOR OUTDOOR LIGHT FIXTURES
WITH AUTOMATIC SHUT-OFF DEVICES AND CERTAIN TYPES OF
ADVERTISEMENT SIGNS; REPEALING SECTION 74-12-2 NMSA 1978 (BEING
LAWS 1999, CHAPTER 197, SECTION 2).

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO:

SECTION 1. Section 74-12-3 NMSA 1978 (being Laws 1999,
Chapter 197, Section 3) is amended to read:

"74-12-3. DEFINITIONS.--As used in the Night Sky
Protection Act:

.228608.4

underscored material = new
[bracketed material] = delete

1 A. "fully shielded" means a fixture that is
2 shielded in such a manner that no more than five percent of the
3 total light emitted, either directly or indirectly, is at or
4 above ten degrees below a horizontal plane running through the
5 lowest point on the fixture where light is emitted;

6 B. "lumen" means an international standard of
7 measurement that quantifies the amount of light emitted by a
8 light source; and

9 [A-] C. "outdoor lighting fixture" means an outdoor
10 artificial illuminating device, whether permanent or portable,
11 used for illumination or advertisement, including searchlights,
12 spotlights and floodlights, whether for architectural lighting,
13 parking lot lighting, landscape lighting, billboards or street
14 lighting [and

15 ~~B. "shielded" means a fixture that is shielded in~~
16 ~~such a manner that light rays emitted by the fixture, either~~
17 ~~directly from the lamp or indirectly from the fixture, are~~
18 ~~projected below a horizontal plane running through the lowest~~
19 ~~point on the fixture where light is emitted]."~~

20 SECTION 2. Section 74-12-4 NMSA 1978 (being Laws 1999,
21 Chapter 197, Section 4) is amended to read:

22 "74-12-4. SHIELDING OF OUTDOOR LIGHT FIXTURES.--[All
23 ~~outdoor lighting fixtures installed after January 1, 2000 shall~~
24 ~~be shielded, except incandescent fixtures of one hundred fifty~~
25 ~~watts or less and other sources of seventy watts or less.]~~

1 A. Except for strings of small lights or temporary
2 holiday lighting, an outdoor lighting fixture installed after
3 July 1, 2025 that is mounted more than four feet above the
4 ground shall be fully shielded and installed and maintained in
5 accordance with the manufacturer's specifications and
6 instructions for use.

7 B. An outdoor lighting fixture that is mounted less
8 than four feet above the ground and emits more than one
9 thousand lumens shall not be directed toward the sky."

10 SECTION 3. Section 74-12-5 NMSA 1978 (being Laws 1999,
11 Chapter 197, Section 5) is amended to read:

12 "74-12-5. [~~NONCONFORMING~~] OUTDOOR RECREATIONAL FACILITY
13 LIGHT FIXTURES.--~~[A. In addition to other exemptions provided~~
14 ~~in the Night Sky Protection Act, an outdoor lighting fixture~~
15 ~~not meeting these provisions shall be allowed, if the fixture~~
16 ~~is extinguished by an automatic shutoff device between the~~
17 ~~hours of 11:00 p.m. and sunrise.~~

18 ~~B. No]~~ An outdoor recreational facility, whether
19 public or private, shall not be illuminated after 11:00 p.m.
20 except for a national or international tournament or to
21 conclude any recreational or sporting event or other activity
22 conducted, which is in progress prior to 11:00 p.m. at a
23 ballpark, outdoor amphitheater, arena or similar facility."

24 SECTION 4. Section 74-12-7 NMSA 1978 (being Laws 1999,
25 Chapter 197, Section 7) is amended to read:

1 "74-12-7. EXEMPTIONS.--

2 A. The following are exempt from the requirements
3 of the Night Sky Protection Act:

4 (1) outdoor lighting fixtures on
5 ~~[advertisement]~~ roadway navigation and safety signs on
6 interstates and federal primary highways;

7 (2) outdoor lighting fixtures existing and
8 legally installed prior to ~~[the effective date of the Night Sky~~
9 ~~Protection Act]~~ July 1, 2025; however, when existing lighting
10 fixtures ~~[become unrepairable]~~ are replaced, their replacements
11 are subject to all the provisions of the Night Sky Protection
12 Act;

13 (3) navigational lighting systems at airports
14 and other lighting necessary for aircraft safety; ~~[and]~~

15 (4) outdoor lighting fixtures ~~[that are~~
16 ~~necessary for worker safety]~~ at farms, ranches, dairies,
17 feedlots or industrial, mining or oil and gas facilities
18 installed prior to January 1, 2027;

19 (5) outdoor digital or electronic billboards;
20 and

21 (6) temporary outdoor lighting fixtures that
22 are necessary for construction, emergency services or film or
23 television production.

24 B. The provisions of the Night Sky Protection Act
25 are cumulative and supplemental and shall not apply within any

.228608.4

1 county or municipality that, by ordinance or resolution, has
2 adopted provisions restricting light pollution that are equal
3 to or more stringent than the provisions of the Night Sky
4 Protection Act."

5 SECTION 5. REPEAL.--Section 74-12-2 NMSA 1978 (being Laws
6 1999, Chapter 197, Section 2) is repealed.

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