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# A BILL FOR AN ACT

RELATING TO LIGHT POLLUTION.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. The legislature finds that the night sky is a  
2           tremendously valuable natural and cultural resource for the  
3           residents of Hawaii, and for visitors to Hawaii. The dark night  
4           sky has tremendous scientific value for astronomy, and is  
5           vitally important for wildlife in Hawaii including birds and  
6           turtles. Mauna Kea, on the island of Hawaii, is the best  
7           astronomical observatory site in the northern hemisphere, and  
8           arguably the best site on Earth. Haleakala on the island of  
9           Maui is also a world-class astronomical observatory site.

10           Unnecessary light pollution is threatening the dark night  
11           sky over the Hawaiian Islands. This light pollution includes  
12           sky glow, energy waste, glare, light trespass, visual confusion,  
13           and environmental harm. Light can travel enormous distances  
14           through the Earth's atmosphere, and therefore does not respect  
15           county boundaries. Light pollution spreads across the entire  
16           State and must be addressed using statewide legislation.  
17           Furthermore, endangered species that are affected by light at  
18           night live on many of the Hawaiian Islands.



1 Many of the problems with light pollution that Hawaii faces  
2 are caused by improperly shielded lights. Poorly shielded  
3 lights direct energy straight into the atmosphere, where it is  
4 wasted. This light produces sky glow, which limits residents'  
5 ability to see stars. For example, in Honolulu only about the  
6 brightest twenty stars are visible, whereas about two thousand  
7 stars can be seen from a dark location. Poorly shielded lights  
8 also cause glare, which diminishes a person's ability to see at  
9 night. Poorly shielded lights also enter locations where the  
10 light is unwanted (light trespass), including bedrooms, making  
11 it difficult for residents to sleep. Excessive light in the  
12 sleeping environment has recently been linked to an increased  
13 incidence of breast cancer. Improperly shielded lights on the  
14 island of Kauai have led to many bird deaths, particularly of  
15 the endangered Newell's shearwater.

16 Act 161, Session Laws of Hawaii 2009, formed a temporary  
17 advisory committee to assist the department of business,  
18 economic development, and tourism to develop a statewide  
19 starlight reserve strategy to preserve the quality of the night  
20 sky and its associated cultural, scientific, astronomical,  
21 natural, and landscape-related values. The temporary advisory  
22 committee recommended the enactment of certain measures in the



1 2012 regular session to conserve energy and promote responsible  
2 use of light.

3 The purpose of this Act (hereinafter to also be known as  
4 the Hawaii Night Sky Protection Act) is to implement the  
5 recommended legislation of the temporary advisory committee  
6 established pursuant to Act 161. It is not the intent of this  
7 Act to require the realignment or relocation of any existing  
8 light poles.

9 SECTION 2. Chapter 201, Hawaii Revised Statutes, is  
10 amended by adding a new section to be appropriately designated  
11 and to read as follows:

12 "§201- Night sky protection strategy. (a) Beginning  
13 July 1, 2014, all state agencies shall comply with shielded  
14 lighting fixture requirements under this section, whereby,  
15 except as specified otherwise in subsections (c) through (f),  
16 every new outdoor lamp light fixture emitting more than three  
17 thousand lumens shall be required to be fully shielded and to  
18 have a correlated color temperature of four thousand Kelvin or  
19 less; provided that the impact of artificial light on shoreline  
20 and ocean waters shall be subject to compliance with section  
21 205A-71. A lighting fixture is considered to be fully shielded  
22 when the lighting fixture is shielded in such a manner that all



1 light rays emitted by the fixture, either directly from the  
2 lamp, or indirectly from the fixture, are projected below a  
3 horizontal plane running through the lowest point of the  
4 fixture.

5 (b) No new mercury vapor lamps shall be sold or installed  
6 after July 1, 2014.

7 (c) As applicable, retrofit work or replacement of  
8 existing lighting fixtures shall:

9 (1) Limit the rated correlated color temperature of  
10 emitted light (lamp, fixture, and filter if used) to  
11 less than or equal to four thousand Kelvin, except in  
12 the case of outdoor athletic facilities as described  
13 in subsection (d);

14 (2) Not be subject to the shielding requirement for lamp-  
15 by-lamp replacement work; and

16 (3) Require one hundred per cent fully shielded lighting  
17 fixtures be installed if more than fifty per cent of  
18 existing nonconforming lighting fixtures need to be  
19 replaced.

20 (d) For outdoor athletic facilities, fully shielded  
21 lighting fixtures with correlated color temperatures less than  
22 or equal to four thousand Kelvin are preferred, but not



1 required. Where fully shielded lighting fixtures are not used,  
2 acceptable luminaries shall include light fixtures that are:

3 (1) Equipped with internal, external, or internal and  
4 external glare control louvers and are installed so as  
5 to limit direct up-light to less than five per cent of  
6 the total lumens exiting from the installed fixtures  
7 and minimize offsite light trespass; and

8 (2) Installed and maintained with minimum aiming angles of  
9 twenty-five degrees downward from the horizontal;  
10 provided that the aiming angle shall be measured from  
11 the axis of the luminaire maximum beam candlepower, as  
12 certified by an independent testing agency.

13 (e) Fully shielded replacement lighting fixtures for state  
14 managed roadways and highways shall be installed on a case-by-  
15 case basis, subject to the availability of capital improvement  
16 project funding and compliance with applicable federal, state,  
17 or county design standards or guidelines. Where fully shielded  
18 fixtures are not used, acceptable luminaires shall be partially  
19 shielded lights that emit no more than five per cent of their  
20 light above the horizontal plane, as certified by an independent  
21 testing agency.



1        (f) The use of existing nonconforming lighting fixtures  
2 shall be allowed, subject to compliance with subsection (c)(3),  
3 for:

4        (1) Lighting fixtures that are extinguished between the  
5 hours of 11:00 p.m. and sunrise by an automatic  
6 shutoff device; or

7        (2) Outdoor amphitheatres, ballparks, playfields, play  
8 courts, or other similar recreational facilities,  
9 whether public or private, that are used for  
10 international, national, state, or county tournaments;  
11 or as needed to conclude any recreational event,  
12 sporting event, or other related clean up activity  
13 that is in progress prior to 11:00 p.m. at the  
14 amphitheater, ballpark, playfield, play court, or  
15 similar recreational facility.

16        (g) The following light sources shall be exempt from this  
17 section:

18        (1) Lighting sources emitting three thousand lumens or  
19 less, which is comparable to a lighting fixture with  
20 an incandescent lamp rated at one hundred fifty watts  
21 or less, and temporary ornamental holiday lights;



- 1        (2) Emergency lighting used by military, national guard,  
2        police, firefighters, correctional, medical, or  
3        hazardous material mitigation personnel, or other  
4        emergency responders for the duration of the  
5        emergency;
- 6        (3) Temporary outdoor lighting used for construction or  
7        major renovation of buildings or for highway  
8        improvements or construction;
- 9        (4) Temporary outdoor lighting used for film production  
10       and other permitted activities such as carnivals and  
11       concerts;
- 12       (5) Temporary outdoor lighting used for agricultural  
13       operations;
- 14       (6) Navigational lights that are required for waterway,  
15       open ocean, and aircraft safety;
- 16       (7) Existing outdoor lighting fixtures that were legally  
17       installed prior to July 1, 2014, subject to compliance  
18       with subsection (c)(3);
- 19       (8) Outdoor lighting fixtures that are necessary for  
20       compliance with applicable federal, state, or county  
21       design standards or guidelines that are related to  
22       health and safety for the general public;



1       (9) Upwards facing lighting fixtures used to illuminate  
2       buildings, monuments, statues, memorial structures,  
3       national or state flags, and other selected facilities  
4       or features that were legally installed prior to July  
5       1, 2014, or that will result in the generation of  
6       three thousand lumens or less, as certified by an  
7       independent testing agency; and

8       (10) Refurbishment, repair, or replacement-in-kind of  
9       lighting fixtures that are character-defining features  
10       of a historic property, as determined by the  
11       department of land and natural resources historic  
12       preservation division.

13       (h) This section shall be considered to be supplemental to  
14       any adopted county lighting ordinances and shall not be  
15       construed to supersede or modify county lighting ordinances or  
16       rules; provided that the county ordinance is not less  
17       restrictive than this section; and provided further that this  
18       section shall not apply to counties with populations of less  
19       than one hundred thousand persons."

20       SECTION 3. This Act does not affect rights and duties that  
21       matured, penalties that were incurred, and proceedings that were  
22       begun before its effective date.





- 1 SECTION 4. New statutory material is underscored.
- 2 SECTION 5. This Act shall take effect on July 1, 2014.



**Report Title:**

Outdoor Lighting; Starlight Reserve

**Description:**

Requires new and replacement state outdoor light fixtures in counties with a population of at least 100,000 to be fully shielded and to have a correlated color temperature of 4,000 Kelvin or less beginning July 1, 2014, with certain exemptions. Effective July 1, 2014. (SB2402 HD1)

*The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.*

