

JAN 25 2017

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 dark night skies
2 hold important cultural, scientific, astronomical, natural,
3 landscape, and tourism related value. Light pollution caused by
4 the excessive, misdirected, or obtrusive use of artificial light
5 has become a worldwide problem, and is now posing significant
6 challenges for the State. The inappropriate use of lighting at
7 night includes over-illumination, with excessive use of
8 artificial light, use of fixtures that direct light upwards
9 causing glare and sky glow, and use of fixtures that have
10 excessive amounts of blue light.

11 Light pollution is a statewide issue because light travels
12 far distances. For example, the western part of Molokai has a
13 much brighter night sky than the eastern part due to the sky
14 glow from Oahu; and the sky glow from Oahu is easily visible
15 from Haleakala and interferes with astronomical observations in
16 the western part of the sky.

17 Light at night interferes with various species of animals,
18 including threatened and endangered birds and turtles.

1 Historical use of poorly designed light fixtures has required
2 very costly retrofits to reduce the impact on these species.
3 Light at night, particularly blue light, also interferes with
4 circadian rhythms, including those in humans. The World Health
5 Organization has listed "shift work" that involves circadian
6 disruption as a probable carcinogen. Research suggests that
7 light intrusion, even if dim, is likely to have measurable
8 effects on sleep disruption and melatonin suppression. Even if
9 these effects are relatively small from night to night,
10 continuous chronic circadian sleep, and hormonal disruption may
11 have longer-term health risks.

12 Another consideration concerning night light is the cost
13 involved. Nighttime illumination of state highways, harbors,
14 airports, and other facilities is costly and consumes large
15 amounts of energy. Application of new lighting technologies may
16 produce substantial energy and cost savings.

17 The legislature finds that the preservation of the State's
18 dark night skies is essential to the State's well-being and that
19 the State needs a statewide coordinated strategy to address this
20 issue.

21 The purpose of this Act is to address the preservation of
22 dark night skies in Hawaii.

23 SECTION 2. (a) The University of Hawaii shall develop a
24 statewide dark night skies protection strategy.

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1 (b) There is established a dark night skies protection
2 advisory committee, to be placed within the University of Hawaii
3 for administrative purposes. The advisory committee shall
4 assist the University of Hawaii in developing a statewide dark
5 night skies protection strategy. The members of the advisory
6 committee shall be the following thirteen persons or their
7 designees:

- 8 (1) The president of the University of Hawaii;
 - 9 (2) The comptroller of the department of accounting and
10 general services;
 - 11 (3) The director of business, economic development, and
12 tourism;
 - 13 (4) The director of health;
 - 14 (5) The director of transportation;
 - 15 (6) The chairperson of the board of land and natural
16 resources;
 - 17 (7) The mayor of each county;
 - 18 (8) The administrator of the office of Hawaiian affairs;
 - 19 (9) The director of the University of Hawaii institute for
20 astronomy; and
 - 21 (10) A representative of the University of Hawaii at Hilo.
- 22 The president of the University of Hawaii shall designate a
23 chairperson from among the members of the advisory committee.

1 (c) The chairperson of the advisory committee may invite
2 interested parties to advise the advisory committee, including:

- 3 (1) A representative from the United States Fish and
4 Wildlife Service;
- 5 (2) A representative of the United States military, to be
6 appointed by the Commander of the United States
7 Pacific Command;
- 8 (3) A representative from the Federal Aviation
9 Administration;
- 10 (4) A representative from the United States Coast Guard;
- 11 (5) A representative from the Federal Highway
12 Administration;
- 13 (6) A member of the Hawaiian astronomical society; and
- 14 (7) A lighting engineer.

15 (d) In developing the dark night skies protection
16 strategy, the advisory committee shall consider and evaluate
17 issues that include:

- 18 (1) Reduction of light pollution in the State;
- 19 (2) Methods to conserve energy;
- 20 (3) Cultural, scientific, astronomical, natural, tourism,
21 and landscape related values associated with dark
22 night skies;
- 23 (4) Protection of threatened and endangered species that
24 are affected by artificial light;

- 1 (5) Impacts of light pollution on astronomical
2 observations from Mauna Kea, Mauna Loa, and Haleakala;
- 3 (6) Educational uses of the dark night sky by K-12 and
4 higher education students;
- 5 (7) Establishment of dark night sky parks, which are
6 designated locations that have special protections for
7 the night sky, and are locations where residents and
8 visitors can view the night sky with minimal
9 interference from artificial light;
- 10 (8) Statewide monitoring of light pollution to monitor
11 light pollution levels and long-term trends;
- 12 (9) Public safety issues related to the reduction in
13 artificial light; and
- 14 (10) Any additional considerations that the advisory
15 committee believes will help to protect dark night
16 skies in the State.
- 17 (e) In conjunction with developing the statewide dark
18 night skies protection strategy, the advisory committee shall
19 consult with the United States Fish and Wildlife Service.
- 20 (f) Members of the advisory committee shall not be
21 compensated but shall be reimbursed by their respective
22 organization for necessary expenses incurred, including travel
23 expenses, in carrying out their duties. The University of
24 Hawaii shall provide all necessary administrative, professional,

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1 technical, and clerical support required by the advisory
2 committee.

3 (g) The advisory committee shall be dissolved on June 30,
4 2021.

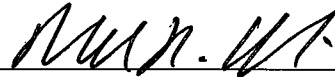
5 SECTION 3. The University of Hawaii shall report its
6 initial findings and recommendations, including any proposed
7 legislation, to the legislature no later than twenty days prior
8 to the convening of the 2018 regular session. The advisory
9 committee shall report its updated findings and recommendations,
10 including any proposed legislation, to the legislature no later
11 than twenty days prior to the convening of each regular session
12 in 2019, 2020, and 2021.

13 SECTION 4. This Act shall take effect upon its approval.

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INTRODUCED BY:



16

BY REQUEST

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Report Title:

Dark Night Skies; Light Pollution; University of Hawaii

Description:

Establishes a dark night skies protection advisory committee to assist the University of Hawaii in the development of a statewide dark night skies protection strategy to preserve dark night skies and reduce light pollution.

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

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JUSTIFICATION SHEET

DEPARTMENT: University of Hawaii

TITLE: A BILL FOR AN ACT RELATING TO LIGHT POLLUTION.

PURPOSE: Establishes a dark night skies protection advisory committee to assist the University of Hawaii in the development of a statewide dark night skies protection strategy to preserve dark night skies and reduce light pollution.

MEANS: Establish in session laws a dark night skies protection advisory committee.

JUSTIFICATION: Dark night skies are a tremendously important natural, cultural, scientific, educational, and economic resource for Hawaii. But the dark night sky is under increased threat from urban lighting.

Maunakea observatory has one of the darkest skies in the world, thanks to over 25 years of careful lighting on the Island of Hawaii. The sky at Haleakala observatory is less dark, partly due to less stringent lighting rules on Maui, and also due to its proximity to Honolulu.

Dark skies are vitally important for Hawaii's two major astronomical observatories. These are among the best astronomical sites on the planet. If the sky is allowed to become bright over these observatories, the telescopes will lose their ability to see faint objects. On Haleakala, the University of Hawaii is engaged in a NASA-sponsored effort to search the sky for dangerous asteroids. The aim is to find any dangerous asteroid that may hit Earth early enough that it can be deflected before impact. This search relies heavily on the dark night sky, and it would be

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significantly weakened if the sky on Maui becomes any brighter.

Besides its impact on Hawaii's observatories, light at night interferes with various species of animals, including threatened and endangered birds and turtles. Historical use of poorly designed light fixtures has required very costly retrofits to reduce the impact on these species. Light at night, particularly blue light, also interferes with circadian rhythms, including those in humans. The World Health Organization has listed "shift work" that involves circadian disruption as a probable carcinogen. According to Professor Steven Lockley of Harvard Medical School, light intrusion, even if dim, is likely to have measurable effects on sleep disruption and melatonin suppression. Even if these effects are relatively small from night to night, continuous chronic circadian sleep, and hormonal disruption may have longer-term health risks.

Another consideration concerning night light is the cost involved. Nighttime illumination of state highways, harbors, airports, and other facilities is costly and consumes large amounts of energy. Application of new lighting technologies may produce substantial energy and cost savings.

The advisory committee described in this Act will bring together representatives from the state, the counties and the public, and will be a valuable forum for exchanging information regarding nighttime lighting and for preservation of the dark night sky.

The advisory committee shall submit a report to the legislature on its initial findings and recommendations.

Impact on the public: The formation of an advisory committee will not impact the public. Recommendations of the committee, if implemented, will affect the public.

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Impact on the department and other agencies:
The operations of other departments may be affected depending on the recommendations implemented.

GENERAL FUND: None.

OTHER FUNDS: None.

PPBS PROGRAM
DESIGNATION: UOH-100

OTHER AFFECTED
AGENCIES: Department of Accounting and General Services, Department of Business, Economic Development, and Tourism, Department of Health, Department of Transportation, Department of Land and Natural Resources, counties, Office of Hawaiian Affairs, Hawaiian Astronomical Society, United States Fish and Wildlife Service, and United States Department of Defense.

EFFECTIVE DATE: Upon approval.