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## A BILL FOR AN ACT

RELATING TO LIGHTING.

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

1 SECTION 1. Section 201-8.5, Hawaii Revised Statutes, is  
2 amended by amending the title and subsections (a) through (e) to  
3 read as follows:

4 "~~§~~201-8.5~~§~~ **Night sky protection strategy~~[-]~~; energy**  
5 **efficient lighting.** (a) ~~[Beginning July 1, 2014, all]~~ All  
6 state agencies shall comply with energy efficient shielded  
7 lighting fixture requirements under this section, whereby,  
8 except as specified otherwise in subsections (c) through (f),  
9 every new outdoor lamp light fixture emitting more than three  
10 thousand lumens shall be required to be energy efficient, fully  
11 shielded, and to have a correlated color temperature of four  
12 thousand Kelvin or less; provided that the impact of artificial  
13 light on shoreline and ocean waters shall be subject to  
14 compliance with section 205A-71. A lighting fixture is  
15 considered to be fully shielded when the lighting fixture is  
16 shielded in ~~[such]~~ a manner that all light rays emitted by the  
17 fixture, either directly from the lamp, or indirectly from the



1 fixture, are projected below a horizontal plane running through  
2 the lowest point of the fixture. A lighting fixture is  
3 considered to be energy efficient when the electricity usage of  
4 the lighting fixture is less than seventy per cent of a non-  
5 adaptive low-pressure sodium lighting fixture emitting the same  
6 number of lumens.

7 (b) No new mercury vapor lamps shall be sold or installed  
8 after July 1, 2014. No new low-pressure sodium lamps shall be  
9 sold or installed after July 1, 2017.

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

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

17 (2) Not be subject to the shielding requirement for lamp-  
18 by-lamp replacement work; ~~and~~

19 (3) Require one hundred per cent fully shielded lighting  
20 fixtures be installed if more than fifty per cent of



1 existing nonconforming lighting fixtures need to be  
2 replaced[-]; and

3 (4) Require energy efficient lighting fixtures be  
4 installed.

5 (d) For outdoor athletic facilities, energy efficient  
6 fully shielded lighting fixtures with correlated color  
7 temperatures less than or equal to four thousand Kelvin are  
8 preferred, but not required. Where fully shielded lighting  
9 fixtures are not used, acceptable luminaries shall include light  
10 fixtures that are:

11 (1) Equipped with internal, external, or internal and  
12 external glare control louvers and are installed so as  
13 to limit direct up-light to less than five per cent of  
14 the total lumens exiting from the installed fixtures  
15 and minimize offsite light trespass; and

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



1           (e) [~~Fully~~] Energy efficient fully shielded replacement  
2 lighting fixtures for state managed roadways and highways shall  
3 be installed on a case-by-case basis, subject to the  
4 availability of capital improvement project funding and  
5 compliance with applicable federal, state, or county design  
6 standards or guidelines. Where energy efficient fully shielded  
7 fixtures are not used, acceptable luminaires shall be energy  
8 efficient partially shielded lights that emit no more than five  
9 per cent of their light above the horizontal plane, as certified  
10 by an independent testing agency."

11           SECTION 2. Beginning July 1, 2015, and annually  
12 thereafter, not less than five per cent of all lighting fixtures  
13 for state managed roadways and highways, as measured on July 1,  
14 2015, shall be retrofitted with energy efficient fully shielded  
15 lighting fixtures; provided that where energy efficient fully  
16 shielded fixtures are not permitted or not practicable,  
17 acceptable luminaires shall be energy efficient partially  
18 shielded lights that emit no more than five per cent of their  
19 light above the horizontal plane, as certified by an independent  
20 testing agency.



1 SECTION 3. There is appropriated out of the general  
 2 revenues of the State of Hawaii the sum of \$ or so  
 3 much thereof as may be necessary for fiscal year 2015-2016 and  
 4 the same sum or so much thereof as may be necessary for fiscal  
 5 year 2016-2017 for the retrofitting of state managed roadways  
 6 and highways lighting fixtures.

7 The sums appropriated shall be expended by the department  
 8 of transportation for the purposes of this Act.

9 SECTION 4. Statutory material to be repealed is bracketed  
 10 and stricken. New statutory material is underscored.

11 SECTION 5. This Act shall take effect on July 1, 2015.

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INTRODUCED BY:

*[Handwritten signatures]*  
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JAN 26 2015



# H.B. NO. 812

**Report Title:**

Street Lights; Energy Efficiency

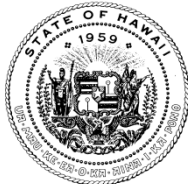
**Description:**

Requires that new and retrofitted street lights on state highways and roads be energy efficient. Requires that a portion of existing street lights be retrofitted with energy efficient lighting fixtures. Appropriates moneys.

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



DAVID Y. IGE  
GOVERNOR



Testimony of  
FORD N. FUCHIGAMI  
DIRECTOR

Deputy Directors  
JADE T. BUTAY  
ROSS M. HIGASHI  
EDWN H. SNIFFEN

IN REPLY REFER TO:

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

February 11, 2015  
10:00 a.m.  
State Capitol, Room 309

**H.B. 812**  
**RELATING TO LIGHTING**

House Committee on Transportation

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The Department of Transportation (DOT) **supports the intent** of H.B. 812 which requires all state agencies to have energy efficient fully shielded lighting effective July 1, 2015.

Currently, the DOT has procured a contractor pursuant to HRS §36-41, Energy retrofit and performance contracting for public facilities to meet the objectives of HB 812. Both Airports Division is in the construction phase of its energy savings contract. The Highways and Airports Division are reviewing the contractor's Investment grade audit of our facilities and are entering into the negotiations of an energy performance contract.

It will take two years to retrofit the exterior lights of state-owned fixtures with an estimated construction completion date of December 31, 2017.

The DOT also provides comments that it may own facilities that are leased to tenants and the bill is not clear whether the state would be responsible for retrofitting if the lease terms cannot be amended directing the tenant to make the improvements.

Finally, the DOT would like to note that Section 2 of this bill conflicts with Hawaii Revised Statutes Section 201-8.5(e) and that the DOT has concerns that the cost to implement Section 2 of this bill will adversely impact priorities as indicated in our Executive Biennium Budget.

Thank you for the opportunity to provide testimony.



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Testimony Presented Before the  
House Committee on Transportation  
Wednesday, February 11, 2015 at 10:00am

By

Robert Bley-Vroman, Chancellor

And

Richard J. Wainscoat, Astronomer

Institute for Astronomy

University of Hawai'i at Mānoa

### HB 812 – RELATING TO LIGHTING

Chair Aquino, Vice Chair LoPresti, and members of the Committee, my name is Richard Wainscoat and I am here today to submit this testimony in my capacity as an astronomer at the University of Hawai'i.

The University of Hawai'i supports the intent of House Bill 812. The University offers the following comments:

1. The language defining an energy efficient lighting fixture in this bill may be technically flawed. It would be better to define energy efficiency using widely understood units such as lumens per Watt, and to require use of solid state lighting (i.e., Light Emitting Diodes, or LEDs).
2. Of all forms of lighting presently available, low-pressure sodium lighting has the lowest impact on astronomy. It is also very energy efficient. For locations close to the observatories, such as Hale Pōhaku on the Island of Hawai'i where outside lighting is required, it is advisable to preserve the ability to continue to use low-pressure sodium lighting. The university recommends adding an exemption in section (b) to permit continued use of low-pressure sodium lighting within 15 km of Mauna Kea Observatory and Haleakalā Observatory.
3. Present state law requires the state to follow county lighting ordinances if the county requirements are stricter than specified in House Bill 812. It is important to preserve this requirement.