

LATE TESTIMONY

Testimony Related to

Senate Bill 2402 SD1

RELATING TO LIGHT POLLUTION

Presented before the

Senate Committee on Public Safety, Government Operations, and Military Affairs

The Twenty-Sixth Legislature

February 21, 2012

by

Richard J. Wainscoat

Chair, Starlight Reserve Committee

Chair Espero and members of the Committees. My name is Richard Wainscoat and I am here today to submit this testimony in my capacity as Chair of the Starlight Reserve Committee.

The Starlight Reserve Committee was established by the 2009 state legislature. It held its first meeting in July 2010, and during 2011 met on a regular basis. One of the tasks of the Committee is to develop proposed legislation for statewide intelligent lighting laws that reduce light pollution. This bill contains language recommended by the committee related to proper shielding of outdoor lights in Hawaii.

The bill contains numerous exemptions aimed at reducing or eliminating any possible additional cost by using properly shielded lights. These include:

1. Existing legally installed lights are exempt — only new and replacement lights are affected;
2. Full shielding is required only for bright light sources (brighter than 3,000 lumens) — this means that most residential lighting is exempt; and
3. Numerous other exemptions such as emergency lighting, temporary lighting, and navigational lighting.

Full shielding of lights has the following important advantages:

1. Light sources are not visible from above, meaning that the impact on endangered birds that are attracted to lights at night, such as the Newell's shearwater, is much reduced.
2. Fully shielded lights emit little light near the horizontal, so the impact on endangered turtles that become disoriented by lights on beaches is much reduced.

Testimony Related to Senate Bill 2402 SD1

Senate Committee on Public Safety, Government Operations, and Military Affairs

February 21, 2011

Page 2

3. Fully shielded lights cause much less glare than partially shielded lights, improving safety, including on our roadways. It is particularly important to avoid glare for elderly drivers, who may have degraded vision due to cataracts or other reasons.
4. Fully shielded lights cause much less skyglow, dramatically reducing the impact of artificial lighting on Hawaii's astronomical observatories. Light emitted at small angles above the horizontal travels enormous distances through Earth's atmosphere. It does not respect county boundaries. Light from Honolulu affects both Haleakala and Mauna Kea Observatories. Use of fully shielded light fixtures is the most important technique for protecting astronomy in Hawaii.
5. Partially shielded lights emit some of their energy directly into space where it is wasted. Fully shielded lights direct their energy downwards only, where it is needed, and can therefore save energy. Substantial energy savings of up to 40% are possible by use of carefully shielded lights.
6. Fully shielded lights emit much less light at near horizontal angles, meaning that light trespass is substantially reduced. Light from adjacent properties or from streetlights entering our bedrooms is a form of light trespass. It can make it difficult to sleep at night. Excessive light at night has been linked to some forms of cancer, particularly breast cancer.
7. Use of fully shielded lights across Hawaii will result in a substantial decrease in skyglow, and restore the ability of Hawaii's residents and visitors to see the night sky. The Milky Way is no longer visible from urban Honolulu. Only about the brightest 20 stars are visible from urban Honolulu. About 2,000 stars can be seen from a dark location. The dark night sky on the island of Hawaii is slowly becoming a tourist attraction — many of Hawaii's visitors come from urban locations that have severe light pollution, and are amazed by the view of the dark night sky from the island of Hawaii. Sadly, many of our children are growing up without ever seeing the magnificent night sky. This is unnecessary, and is a direct result of irresponsible and careless use of light at night.

The Starlight Reserve Committee has not yet discussed the exemption for historic lighting inserted by the Economic Development and Technology and the Energy and Environment Committees in SD1. I note that historical lighting typically predates the invention of the high intensity discharge lamp, and is normally designed for use with light sources significantly dimmer than 3,000 lumens (the limit already included in this bill for the requirement of full shielding).