

(S.B. 2530)

(No. 218)

(Approved August 9, 2008)

AN ACT

To create the Light Pollution Control and Prevention Program; to establish its purposes; to provide for basic standards to regulate light pollution; to create a classification for special protected areas; and to confer rulemaking authority.

STATEMENT OF MOTIVES

Since early on in the past century, light has been obtruding upon our skies. The glare of artificial light brought about by the inappropriate use of lamps or luminaires sends light directly or indirectly up toward the sky, the effect of which is known as light pollution. This kind of pollution takes place when there is a glow in the sky which is produced by the reflection of artificial light in gases and in very light airborne particles. That same glow robs the night of its darkness, and the light of the stars in our skies progressively “vanishes.” The light of the stars is said to “vanish,” because we are unable to see the stars with dimmer lighting.

We have become aware of this new kind of environmental pollution, owing to astronomy’s constant struggle to detect and observe stars and galaxies which are barely seen due to their great distance from our planet. Astronomers need not only massive and costly telescopes to further their science; they also need to minimize light pollution in order to be able to study farther galaxies and stars, so as to determine the origins, the structure, and the future of our universe, our galaxy, and our system.

Studies on the causes of this new kind of pollution show that the growth of populated centers and urban settlements, and technological advancements are the constant factors in the ever-growing, unchecked emission of direct or indirect light toward the night skies. The main cause of light pollution has been identified to be the use of lamps or luminaires with poorly designed or no shades to direct the light downward. This problem is mainly seen in the public light system. A glaring lack of knowledge or of interest can also be appreciated in lighting designs and in the kinds of lamps or lights most frequently used.

The indiscriminate use of standard lights and the lack of control over “decorative” lighting and the lighting used in signs or advertisements are common causes of indiscriminate lighting in urban settlements. The effects of light pollution are various: higher electric utility bills, increased energy demand, toxic residues from lamps, unsafe conditions due to bad lighting, the flight of wildlife from populated areas, and the loss of scientific knowledge for lacking appropriate visibility of the sky.

Lamp or luminaire correction programs implemented in other jurisdictions have yielded significant electric power savings, as well as a substantial decrease in light pollution. These programs have incorporated various aspects, such as more efficient and less costly lighting; tandem lighting; decreasing “light intrusion” caused by poorly designed and misplaced lighting systems; using compact fluorescent lighting; using alternate energy sources; reducing lighting of monuments during nightly periods; eliminating obstacles such as branches or foliage; replacing inadequate shades or refractors; regulating lighting issues by government authorities; and educational campaigns for related professional sectors and

the general public. The importance of this new kind of pollution has moved bodies of the stature of the United Nations to issue statements on and make commitments with the international community to solve this problem.

Experts on this phenomenon have reached a consensus as to the maximum levels that should be allowed, according to circumstances and situations that repeat themselves all over our planet. This knowledge is applied to our particular situation and adjusted accordingly, and is thus incorporated into this measure as appropriate for the benefit of the Puerto Rican people. Likewise, the experiences of countries in Europe and South America, as well as of some jurisdictions of the United States, provide examples for us to undertake committed endeavors so as to protect the right of future generations not only to enjoy the beauty of a starry night, but to also reap the benefits that the science of astronomy can contribute to the general welfare by means of the knowledge that may be garnered if light pollution is controlled.

Proof shows that Puerto Rico is one of the most polluted sites within the Caribbean region. Moreover, light pollution has adverse effects on the Mosquito Bioluminescent Bay in Vieques and on the Bioluminescent Bay of La Parguera. This pollution has brought about the loss of their luminosity, for which reason neither present nor future generations will be able to enjoy their beauty as past generations have. In view of this alarming reality, the Government of Puerto Rico must take affirmative action by taking such necessary and appropriate measures directed not only to ensure the present reduction of this kind of pollution, but rather, to its complete eradication. We shall thus improve the quality of life of our people and secure the right of our children to enjoy the sight of the skies on a starry night for many years to come.

BE IT ENACTED BY THE LEGISLATURE OF PUERTO RICO:

Section 1.—Legal Basis.—

This Act is hereby adopted under the provisions of Section 11 of Act No. 9 of June 18, 1970, as amended, known as the “Environmental Public Policy Act.”

Section 2.—Short Title.—

This Act shall be known as the “Light Pollution Control and Prevention Program Act.”

Section 3.—Definitions.—

For the purposes of this Act, the following terms shall have the meaning stated below:

(a) “Administration” or “ARPE (Spanish acronym)”.—Means the Regulations and Permits Administration, created under Act No. 76 of June 24, 1975, as amended, known as the “Regulations and Permits Administration Organic Act.”

(b) “Astronomical Sky Quality”.—Means the group of environmental conditions of the sky which determine its conservation possibilities.

(c) “Night Sky”.—Means the sky as we can perceive it for a lapse comprising from dusk until the dawn of the next day.

(d) “Use Coefficient”.—Means the number of lumens of a lamp received in the site where light is necessary, in relation to the total number of lumens emitted by such lamp.

(e) “Light Pollution”.—Means the adverse effect of artificial lighting which causes glow upon the night sky.

(f) “Department”.—Means the Department of Natural and Environmental Resources, created under Reorganization Plan No. 3 of December 9, 1993, as amended.

(g) “Director”.—Means the Director of the Light Pollution Control and Prevention Program.

(h) “Efficacy”.—Means the ability of a lighting system to produce the desired effect on the lighting environment.

(i) “Efficiency”.—Means the measure of the effectiveness or usefulness of a lighting system when comparing its purpose to its efficacy.

(j) “Light Emission”.—Means the emission of luminous flux by a lamp or luminaire.

(k) “Top Hemisphere Emission”.—Means the light emitted above the horizontal plane of a lamp or luminaire.

(l) “Light Beam Expansion”.—Means the total range between two directions in which the light emission intensity is constant.

(m) “Emission Source”.—Means a lamp or luminaire that casts top hemisphere emissions.

(n) “Existing Source”.—Means an emission source installed before the date this Act takes effect.

(o) “New Source”.—Means an emission source installed after the date this Act takes effect.

(p) “Disability Glare”.—Means the reduction of visibility due to the reflection of light.

(q) “Light Intrusion”.—Means light that enters places where it is unwanted or unnecessary.

(r) “Board”.—Means the Environmental Quality Board of the Commonwealth of Puerto Rico, created under Act No. 416 of 2004, as amended, known as the “Environmental Public Policy Act.”

(s) “Planning Board”.—Means the Planning Board, created under Act No. 75 of June 24, 1975, as amended, known as the “Puerto Rico Planning Board Organic Act.”

(t) “Lamp”.—Means a device that emits light; the term is usually used to refer to light bulbs and their installation.

(u) “Spotlight”.—Means a light used with the purpose of emphasizing on or drawing attention to a particular object or building.

(v) “Lighting Environment”.—Means the general level of lighting in an area.

(w) “Luminaire”.—Means a device that casts, filters or transforms light, including light bulbs and all parts required for its proper installation, protection, connection, and operation.

(x) “Existing Luminaire”.—Means a luminaire which already exists by the date the Governor signs this bill into Law.

(y) “Lumen”.—Means the internationally used unit to measure the luminous flux cast by an emission source.

(z) “Diffuse Lighting”.—Means the light cast by an emission source which oversteps the area where it is needed or for which it is intended.

(aa) “Shade”.—Means an element used to shield from direct view or to direct the light emission of an emission source.

(bb) “Person”.—Means any private person, whether natural or juridical, within the jurisdiction of Puerto Rico.

(cc) “Program”.—Means the Light Pollution Control and Prevention Program created under Section 5 of this Act.

(dd) “Floodlight”.—Means a lamp or luminaire designed to provide intense lighting over certain area.

(ee) “Reflector”.—Means a lamp or luminaire that controls light emission through mirror reflection.

(ff) “Refractor”.—Means a lamp or luminaire that controls light emission through lens refraction.

(gg) “Glare”.—Means indirect, intense, blinding light.

(hh) “Bioluminescence”.—Means the ability of some animal or vegetable beings to emit luminous energy through certain chemical reactions.

Section 4.—Program Creation.—

The Light Pollution Control and Prevention Program is hereby created, to be attached to the Environmental Quality Board of the Commonwealth of Puerto Rico, the purpose of which is to prevent and control light pollution of the night sky for the enjoyment of all our inhabitants, for the benefit of astronomy’s scientific research, and for encouraging energy saving by establishing norms regarding the kind, class, construction, installation, and use and management of electrical devices suited for outdoor lighting and energy-saving systems that secure the astronomic quality of our sky.

Section 5.—Program Headship.—

The Chair of the Environmental Quality Board shall appoint a Director, who shall be the central-government official in charge of the development and implementation of the Program with the advice of the Department of Natural and Environmental Resources, the Planning Board, and other agencies, as may be required.

Section 6.—General Provisions.—

The following norms, measures, and methods are hereby established as the ones allowed concerning light emission toward the night sky, as the basis for the Program’s development.

(a) Outdoor emission sources, regardless of whether these have been installed before the date of effectiveness of this Act, located in private properties for commercial, industrial or personal use, must comply with the following provisions:

(1) When colored luminaries are used for commercial or industrial purposes, such outdoor lamps or luminaires must have shades and devices for automatic on-off switching and must use the least energy necessary.

(2) When the purpose of the lighting system is to provide security or to illuminate sidewalks, roads, equipment storage areas, or parking lots, only low-pressure sodium emission sources may be used.

(3) When the purpose is to provide lighting for signs or to decorate in recreational areas, buildings, gardens, and analogous structures or areas, such outdoor lighting system must have automatic on-off switching, and whenever feasible, shades that minimize top hemisphere emissions and light intrusion.

(b) To such effect, outdoor emission sources, regardless of whether these have been installed before or after the date of effectiveness of this Act, in private properties for commercial, industrial or personal use, shall be turned off between 11:00 p.m. and the next day at dawn, except for:

(1) Outdoor emission sources intended for commercial and industrial use on locations serving the public after 11:00 p.m., but only as long as such locations are in service;

(2) Outdoor emission sources intended for security purposes, such as lighting for sidewalks, roads, equipment storage areas, and parking lots; and

(3) Outdoor emission sources intended for recreational areas in use after 11:00 p.m., but only as long as such areas are in use.

(c) Any lighting system intended for advertising or publicity located inside the facilities of a commercial establishment shall be turned off between 11:00 p.m. and the next day at dawn, except if such establishment is open to the public. Provided, that all lighting systems intended for advertising or publicity located outside such facilities shall be turned off between midnight (12:00 p.m. [sic]) and the next day at dawn. All outdoor emission sources must comply with the provisions of this Act, as well as with all other applicable statutory, administrative, and municipal provisions.

(d) Any lighting system used for open-air advertisements must comply with the following provisions:

Such system shall be installed on the top or uppermost side of the advertisement's structure, and the same must comply with control provisions, in order to avoid top hemisphere emissions and diffuse lighting, and comply with provisions in this Section concerning time schedule control.

(1) Light systems of existing advertisements shall be modified so that they comply with applicable provisions within a term of six (6) years as of the date of effectiveness of this Act.

(2) The use of reflectors or floodlights in light systems for advertisements is hereby prohibited.

Section 7.—Plans and Proof of Compliance.—

(a) The use of any kind of light system design, material or installation method is hereby prohibited unless evaluated and approved by the Board or the ARPE. To such effect, the outdoor use of the following is hereby prohibited:

- (1) The use of mercury-vapor emission sources;
- (2) The use of sodium, fluorescent, metal-halide, quartz or incandescent emission sources; and
- (3) The use of emission sources operating on laser beam technology, except during periods not greater than thirty (30) days and only for the duration of a specific commercial or recreational activity.

(b) Any person who submits documentation to the Planning Board and the ARPE so as to obtain the authorizations and permits required for a proposed work involving outdoor lighting systems must include, as part of the documents thus submitted, proof that the proposed work has been approved by the Board by virtue of the provisions of subsections (20), (27)(A) and (B), and (28) of Section 11 of Act No. 9 of June 18, 1970, as amended.

This not to be construed to constitute a thorough listing, such documentation shall include the following information:

- (1) The plans, indicating the location and any kinds of lamp or luminaire, installation, floodlight, reflector, and refractor to be used in connection with the lighting system;
- (2) The description of lighting devices shall include, not to be construed as a limitation, drawings and commercial or other descriptions that suit this purpose.
- (3) Available information, as detailed as possible, concerning the efficacy, the efficiency, the top hemisphere emission, the possible light intrusion of the proposed light system, the possibility of disability glare, as well as the methods or devices to be used to concentrate or correct the beam expansion of the proposed lamps or luminaires; and

(4) If during the course of the development of the new work, any variation in the proposed and approved lighting system is considered, such variation shall be first submitted to the attention of the Board, for approval and the eventual approval of the Planning Board and the ARPE, as may correspond.

(c) The ARPE and the Planning Board must require proof of preliminary approval by the Program of the proposed lighting system as a requirement for the eventual evaluation of any new work.

Section 8.—Outdoor and Special Area Classification.—

(a) The following classes are established for outdoor and special areas, according to their lighting characteristics:

(1) Class 1.—Dark Tracts.—Areas used as parklands, conservation areas, and rural, suburban or urban areas with little or no outdoor lighting;

(2) Class 2.—Low-Lighting Environment Areas.—Suburban and rural residential areas;

(3) Class 3.—Medium-Lighting Environment Areas.—Urban areas used as residential zones;

(4) Class 4.—High-Lighting Environment Areas.—Urban areas used as residential or commercial zones with night activity.

(5) Special Vieques Zone Classification.—All of the territorial area of the Island-Municipality of Vieques, in seeking to protect the Mosquito Bioluminescent Bay;

(6) Special La Parguera Zone Classification.—A special zone that comprises a five (5) mile radius from the La Parguera Bioluminescent Bay, in seeking its protection;

(7) Special Classification for beaches used by sea turtles, any coastal areas used by sea turtles during their yearly trail through our coasts for nesting and egg-laying.

Section 9.—Administrative Provisions.—

The Chair of the Board shall adopt regulations as necessary to implement the provisions of this Act. Such norms shall ensure the implementation of corrective measures as applicable to any and all existing areas and works on the date of approval of this Act, which must include correction plans with maximum terms of six (6) years.

The Department and the Planning Board shall provide the Board with any consultation, assistive, and support services as may be necessary to guarantee the efficient and adequate implementation of this Act, in terms of studies, development, and implementation.

Section 10.—Transitional Term.—

Once the provisions of this Act take effect, there shall be a transitional term so as to enable existing luminaires to comply with the provisions of this Act. As for existing public luminaires, the transitional term shall be ten (10) years. As for existing private luminaires, the transitional term shall be twenty (20) years. Such twenty (20)-year transitional term shall also apply to projects under construction or which have been submitted to the Regulations and Permits Administration for transacting any and all permits within the first six (6) months of effectiveness of this Act.

Section 11.—Savings Clause.—

If any section, part, paragraph, clause or subsection of this Act were to be found unconstitutional by a competent authority, such ruling shall not affect the effectiveness of any other section, part, paragraph, clause or subsection, which remaining provisions shall be in full force and effect.

Section 12.—Effectiveness.—

This Act shall take effect on July 1, 2009, for the sole purpose of having the Environmental Quality Board establish the Light Pollution Control and Prevention Program and adopt regulations as necessary for the implementation of the provisions of this Act. Its remaining provisions shall take effect on January 1, 2010.

CERTIFICATION

I hereby certify to the Secretary of State that the following **Act No. 218 (S. B. 2530)** of the **7th Session of the 15th Legislature** of Puerto Rico:

AN ACT to create the Light Pollution Control and Prevention Program; to establish its purposes; to provide for basic standards to regulate light pollution; to create a classification for special protected areas; and to confer rulemaking authority.

has been translated from Spanish to English and that the English version is correct.

In San Juan, Puerto Rico, today 13th of November of 2009.

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